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THE
IRISH BUILDER

AND

Engineering Record.

PUBLISHED ON THE 1ST AND 15TH OF EVERY MONTH.

ESTABLISHED JANUARY, 1859.

“The empire of man over material things, has for its only foundation the Sciences and the Arts.”—LORD BACON.

VOL. XIII.—1871.

DUBLIN:
PRINTED AND PUBLISHED BY AND FOR THE PROPRIETOR, AT THE OFFICE,
42 MABBOT STREET.

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THE IRISH BUILDER

And Engineering Record.

Free Education for our Working Classes.



THE broad and comprehensive system of the United States of America, which enunciates the doctrine of free education to the children of all naturalized subjects, is based upon the axiom that it is the duty of government to provide for the teachings of every child without distinction of rank or class. In the newer states, as in California, this principle proclaims itself to a far greater extent and in a wider and more cosmopolitan spirit, because it declares the child of every parent irrespective of nationality, white, negro, and even Chinese, entitled to free education at the public expense. This system develops itself further in a considerable portion of Continental Europe, some states going so far as to render it compulsory. There are facilities existing in this country, so far as primary education is concerned, in the National system, the schools of the Christian Brothers, and the numerous religious houses which devote themselves to this purpose; and the cost being but nominal, the children of all except the extreme poor can now, provided they have the application, be as well taught as the middle-class children of the past generation; and yet there are too many parents upon whom this boon falls unavailingly, and who are unable to allow their children to profit themselves by it, for, after all, the trifling sum of one penny per week, where two or perhaps three children are to be sent to school, makes a serious inroad upon a scant weekly pittance. There are the ragged schools, but an inherent pride exists in the Irish poor, unless they have sunk to the lowest depths, which will not permit their aid so long as a parent's stalwart arm can wield an implement for the family support, and it is a commendable pride which would hold eleemosynary aid in abhorrence.

I have often thought, when listening to criminal trials in our commission court, what different future would have awaited young criminals if their minds had been early instilled with even ordinary moral training; and that it was mere accident of birth which placed them where they stood as children of the outcast poor, forming, as they do, so large a preponderance in criminal statistics. There will be always temptation to crime amongst the poor which even the best moral training can scarcely reach, but its diminution always follows in the wake of education, for we ever find in the history of nations where least attention is paid to it the criminal statistics range in a higher degree than in others where greater facilities are offered. It is more than probable the question of education will occupy

a prominent place in the discussions of next session of Parliament, unless the present suicidal war between two great European nationalities, or rumours of wars in which the British Government may become entangled, cause their attention to be directed to more pressing matters; but a more important one for the future welfare of this country it is scarcely possible to imagine. Whether the present system should be replaced by what is called denominational does not fall within the province of this paper, but it should be borne in mind that religion is a necessary ingredient, without which it is possible education is not a blessing; therefore whatever belief the child has been reared in I think should form a principal part in its teachings, otherwise when grown to adult life a strong tendency will exist toward atheistical or socialistic doctrines. In these remarks my object has been to shew the indispensability of primary education, and to advocate that it should be free to the fullest extent of that term—a principle which appears to be lost sight of altogether; and further, that even then, so far as the welfare of a nation is concerned, it is but an installment, and should be followed up by a free intermediate, or what is called technical education for the working classes. In the rudest form of life, going back to uncivilized man, without some approach to this kind of education the wild denizen of the forest would be absolutely powerless to obtain his means of subsistence; he is early trained in all the rude wants and appliances of his every-day life,—war, the chase, and fishing take the most prominent part in his early teachings; how much more necessary then in civilization, where a constant struggle is going on for pre-eminence between every calling of life that suitable education for a selected avocation should be provided for the youthful mind. If it were possible to imagine an isolated nation, cut off from all communication with the outer world, the necessity for technical education would not arise, because it would supply its own wants; no foreign rivalry could exist, and the struggle would then be between individuals instead of being with nationalities. It is a truism that there is more real wealth arising to a community from what is called the technical education of its artizan class than if it were a country of gold mines, for, with few exceptions, all the priceless inventions which have added so much material wealth to the nations of the civilized world have been the offspring of self technically-educated men originally sprung from the working classes, and by the creative power of whose minds gigantic fortunes have been built up, adding the new nomenclature of merchant princes to our vocabulary. Here in Ireland little facilities for this purpose are afforded (and these only until lately); it is true the Royal College of Science offers, at particular periods, lectures

upon subjects adapted to artizans, but are they attended by the classes they are intended to benefit? It would be impossible they should be, for the best of all reasons, because few amongst them can afford to pay the entrance fees. England and her dependencies, with all her wealth and all her boasted civilization, is a full generation behind time with regard to education. That she has been the most influential nation in the history of the world is proved by her having given a literature and a language (which must, under existing circumstances, endure unto the end of all time) to a vast proportion of the human race; but that she is fast losing her prestige, both as a manufacturing and political power, is forcibly shewn in Mr. Scott Russell's book on technical education, published in the latter part of the year 1869, and proved, with regard to manufactures (by the reports and awards of the great Paris Exhibition of 1867), that she is sadly distanced in the competitive markets of the world. Mr. Russell prominently lays before us the cause, which he states to be the vast superiority of the systemised education of the continent, which teaches entire peoples intelligence, method, science, and work, and annihilates the cause of fearing the rivalry of other races. He thus writes, at page 47, "England standing by idle, has allowed the education of one whole generation on the continent to pass her unheeded. Seven years are enough for the largest technical education, seven more years are enough for apprenticeship and practical training. The whole generation of younger men on the continent who are exercising their skilled crafts, trades, and professions in educated countries have received a high education and training from the organised schools of their governments; these young men, now between the ages of twenty-five and thirty-five, are distinguishing themselves and their countries by the excellence of their work, the higher quality of their manufactured materials, the economy of their execution, the beautifulness of their designs. Ask these men whether they think they and their country have benefitted by systematic technic education? and you will get for answer—that to it they owe all their success."

Amongst the growing population of the vast Continent of America young people who cannot read or write are unknown; over the greater proportion of Continental Europe, Germany, Prussia, Austria,* Switzerland, and

* Free education, both primary and technical, is established throughout the Austrian dominion, and in the most liberal and cosmopolitan spirit of philanthropy. In its primary form it is compulsory, as the government insist that all children, both male and female, from the ages of five to thirteen shall be sent to school. Religion forms one of its prominent features, and when we consider the widely different nationalities and beliefs which are comprised within the broad area of the empire from Galicia and Silesia, on the borders of which the Russo-Greek Church prevails to the southern slopes of Hungary, semi-Christian and semi-Mahometan down to the sunny waters of the Adriatic, with the intervening countries, in which the Roman Catholic religion largely predominates, although interspersed with considerable congregations of Lutherans, Calvinists, and dissenters of every denomination, with a large amount of Jews, it would be imagined some difficulties would here arise, but this is a mistake, as, wherever

France it would be difficult to find any who cannot do both with facility; but in England it forms the exception, not the rule, particularly in the mining districts, where a large proportion are ready untaught. The countries above-named, more particularly Germany, Prussia, and Switzerland, appear to be vast teaching communities, where schools and even colleges are established in all towns of importance for instruction in every description of handicraft labour. In this paper I will confine myself to but one example, and that is building, as being better conversant with what its details would be if receiving the same encouragement in these countries.

Mr. Russell informs us that all trades in connection with building are largely appreciated on the continent, and describes numerous schools established for instruction in its arts and mysteries. Amongst the rest I will cite an example in his own words. Referring to Wurtemberg, he says: "A second and more remarkable institution is the school for the building trades also at Stuttgart; it is now one of the most meritorious on the continent. The men whom it was especially designed to help in their trades are stonemasons, bricklayers, and carpenters, to be trained for future master builders; lower class builders to be trained for constructors of public works, subterranean works, and constructors of reservoirs, constructors of water works, river works, and mill works, and land surveyors of the first and second class. The general workmen, whose education it undertakes, are plasterers, tilers, roofers, joiners and carpenters, glaziers, turners, decorators, ornament sculptors, and modellers. Its great merit is its perfect adaptation to the wants of each separate class of persons; for young men who are much employed in winter and less in summer it provides summer courses of study, and gives them vacation in winter, and *vice versa*. It has classes in the early morning, the same at mid-day, and the same over again in the evening; and the hours of the different classes are so timed that the pupil may attend many or few hours of the day and still obtain the studies he requires. The school is presided over by the most distinguished architect of Wurtemberg, with no fewer than twenty-eight professors and masters under him. Systematic courses are provided for those who can go through the education required to obtain certificates of competence; and their estimation of its value is proved by the fact that the school is crowded by exactly the class of men whom it was intended to benefit." This is but one example, and when we remember these schools are numerous, and that similar facilities are offered in every branch of industry, and that the entire expenditure to the states in which they exist amounts to the sum of 2s. 7d. for each inhabitant, it contrasts unfavourably with our lectures at the Royal College of Science, to which a sum of 5s. per each course of twelve lectures is demanded. No wonder they should be thinly attended by those they are supposed to benefit, while those, one of which I have described, and all of which are free, will be crowded to excess.

I have been often asked what necessity is there for the carpenter who can frame a roof, the mason who can chisel his ashlar, the bricklayer who can lay header and stretcher,

a sufficient number of one denomination exists separate schools are established for their use, and this applies as well to Hebrew as Christian congregations. I have said the Roman Catholic religion largely predominates, and with it its form of teaching; where children of other belief are few they must attend Roman Catholic schools, but are not required to be present during religious teaching, but which they receive in their own form separately. The Jews are instructed in these schools from an authorized work, the *Bene Zion*, which consists of extracts and morals from the Old Testament. All are equally well attended to, and under the supervision of the clergy of their respective faiths. There is one great fault, however, which is unknown under other continental governments, and which tends to perpetuate a caste system altogether opposed to free mental and commercial development, restricting and narrowing a system which would otherwise be so utilitarian in its objects.—every pupil must follow the description of education marked out for them by the state, and such as is considered will be afterwards useful to them in the schools established for teaching the arts and trades; they are thus compelled to follow avocations which may or may not be distasteful to their own ideas. For further information on this subject see *Wilde's Austria*. Its Literary, Scientific, and Medical Institutions." Dublin, 1843.

the plasterer who can easily run moldings, or the labourer who can drive a pick, wheel a barrow, or carry a hod, to know more than readily handle their respective implements, and have been told that more knowledge would set them above their work and make them my equals; and to this I have answered, the man of ordinary intelligent mind, educated to his calling, will do more work without waste of labour or materials, and do it efficiently, in far less time than mere brute or unskilled labour can ever hope to accomplish. The educated workman knows at a word his employer's instructions and does it accordingly, while no amount of words can ever hammer it into the untaught, but still perhaps intelligent novice. And with regard to his being set above himself, I do not think this can apply as society now exists, the barriers to social standing are so great they soon teach each his level; at all events I have ever found the well-instructed workman politely deferential to his superiors without an approach either to servility or presumption, which certainly does not occur with the ignorant. That all have not the same facilities for acquiring knowledge is true, but it is also true the greater facilities you give them in this respect the larger number of qualified men you will call forth; and when we consider that national prosperity is so largely dependent upon its manufactured produce, the excellence of its skilled labour, and its ability to compete in a foreign market, I think no apology is necessary for agitating the principle of free primary and technical education for our working classes.

In concluding, although it is altogether foreign to my subject, I cannot refrain from contrasting here the high standard of teaching which prevails in Prussia and Germany with that of other countries, supplemented as it is by the finished education of the military colleges, which every man must avail himself of; and I cannot avoid imagining that the reverses of France are largely attributable to this cause. France, the leader of civilization and of all the humanising influences of refined life, teacher of the arts, and mistress of priceless art treasures, which have no equal in the world, pioneer of education for the working classes in her free polytechnic schools, and developing, whether it be for good or for evil, all that can tend to elevate the human mind: it cannot be denied but that she is now writhing in her agony, humiliated, crushed, and bowed down by the superior military teachings acquired by her foes. In Prussia and Germany every man must be educated, for, from the peer to the peasant, at the age of eighteen he is compelled to give three years' military service, during which period he has all the advantages of the highly organised system of schools established at every military depot, and during his probation here, the workman receives the highest education he is capable of acquiring, and equally good for those whose previous teaching will admit of their profiting by it as that given in our universities. It is no wonder then that habits of method, order, thought, and precision would be characteristic of their armies, that in warfare they are without an equal, and all this from the wonderful training they are subjected to. England and her dependencies are here taught a lesson, for the time may yet come when she will look back with regret at her own apathy in the cause of free education.

WILLIAM HUGHES.

SCULPTURE AT ST. FINBAR'S, CORK.

ONE of our lithographs in present number is of the great western rose window of St. Finbar's, with the bas-reliefs of the four evangelistic emblems surrounding same, viz., an eagle, an angel, a bull, and a lion. These are, we understand, the gift of the Freemasons of Cork, and their execution was entrusted to Mr. C. W. Harrison, of Great Brunswick-street in this city. They are of Cork lime-

stone, exquisitely carved. The window is circular, divided into eight compartments by sculptured shafts. There is a boldness and massiveness about this window which generally characterises the work of Mr. William Burges, the architect of the Cathedral.

Our second illustration is of the baptismal font which has been placed in this Cathedral. It is from a design by the architect, and has been well carried out by the sculptor, Mr. Harrison. It is composed of Cork red, Galway green, and Sicilian marbles, judiciously disposed. The bowl is taken out of a block of Cork red, and bears on its exterior, in sunk brass lettering, the text, "We are buried with Him by baptism unto death." The cover is of mahogany, on which is laid wrought-iron scroll-work of chaste pattern, as shown in our sketch taken from a photograph by Messrs. Millard and Robinson, Sackville-street. This ironwork is, we consider, a very fair specimen of what can be produced in our city; it has been executed by Mr. Jas. Fagan, Great Brunswick-street, whose name we have on more than one occasion mentioned in this journal in connexion with creditable and artistic workmanship.

As we propose in a future issue to return to the subject of this building and its carvings, we shall conclude by expressing our opinion that, in the works above alluded to and in those to be hereafter noticed, Mr. Harrison has fully sustained his well-earned fame as an artist.

THE RECENT SEWER CASE.

THE action taken by Mr. Richard Martin, of Sir John Rogerson's-quay, against the Corporation, for neglect of one of their most important duties has, we are of opinion, resulted very properly in a verdict for the plaintiff. That a citizen and ratepayer should be subjected to such annoyance and loss for four years, by reason of the very imperfect construction of a sewer, and the subsequent inattention to its cleansing, is a matter that should be brought before a legal tribunal, particularly in a case like the present where the injured party was not himself at liberty to take measures for preventing the flooding of his premises, and the rising up of noxious sewage through his office floor.

In our report (given on another page) we stated that when the jury had retired to consider their verdict, the learned counsel on both sides handed in some technical objections to his lordship's charge. We have since learned that an appeal is threatened by the Corporation. Judging by the evidence given in the course of the trial, it is possible that the outlay which will be incurred for costs of an appeal would be amply sufficient to defray the expense of remedying the nuisance complained of. The course threatened would be only a still further and wanton waste of the money of the citizens. There is but little doubt that the law as laid down by the Lord Chief Justice is correct. The appeal—if such be really intended to be made—can only end in failure so far as the Corporation is concerned.

At Hoeylaert, near Groenendael, M. Jaminé, the architect, during the reconstruction of the parish church, discovered amongst the foundations of the old church a block of stone more than a yard in height, to which the *Independance Belge* invites the attention of antiquaries. The inscription which is on the stone seems to point out that it was part of a votive altar, raised by Caius Appianus Pacatus during the Gallo-Roman period.

PREJUDICE *VERSUS* PROFIT.

THE capitalist who embarks in a speculation which gives employment to a number of people who have no other means of living than by their daily labour, is worthy of protection and respect. This being our belief, we deem it our duty to lay before employers some reasons which we have drawn from experience, that will go far to prove that there is a prejudice existing amongst the majority of employers against their men, which interferes with the profits in no small degree.

The feeling to which we would direct attention is one that has caused us more than once to groan, and which has been so often the cause of laying blame where none is deserved, that we see no other remedy than to place our views before employers, in the hope that they may in some measure help to remove it. The feeling is one of distrust—a kind of belief that from the moment the mechanic has served his apprenticeship he becomes a being not to be believed, not to be trusted,—to be looked upon as one ready at every opportunity to fritter away his time, and careless as to whether his master receives the worth of the money which he pays for the work done. So often have we felt the injustice of this feeling that we have at last put it down to prejudice, and deplore it accordingly. This prejudice in many instances is hereditary, in others it springs from affectation, and in not a few it arises from ignorance on the part of employers of the technicalities in connection with their different trades. In the first place it is hereditary, because it is handed down from father to son. The son of an employer is taught from his earliest days not to associate himself in any way with the ideas of his father's employés, to receive with caution everything that may be uttered by them, and to look upon them as a class of beings useful only in the amount of work they do for the smallest possible reward. He is taught, in fact, to regard them as a set of people of whom the world would be well rid as men, and a pity that what is executed by their hands cannot be done by magic or some such contrivance.

Without pausing to examine from whence this prejudice has sprung, we here assert that it is contagious—that it is the easiest thing in the world for a man about to embark in a speculation to become infected with it, to the great disquiet of his mind and, we shall try to point out, to his ultimate loss and consequent vexation and worry. This prejudice, which we believe to be a disease, has spread from the employer to the architect or artist, and from him to his client, and on and on until it has become fixed in the minds of statesmen so firmly that it is impossible, during the existing state of things, for the working community to procure even the shadow of a law which would be of material service to them. Everybody is talking about the working man, and his position, his faults, and follies (his virtues are never spoken of), but himself; he has never been asked to speak. There has been plenty of scolding, plenty of sneering, and imploring; by turns plenty of consultation amongst those who affect to know all about his foibles, and what would cure him. There has been plenty of temperance spouting also—indeed, so much of this last never-to-be-sufficiently-often-mentioned most potent remedy for all the ills that the working man's toiling flesh is heir to, that he has become sick of the cant, and grown well again, and reconciled to the nuisance. Hundreds of thousands have tried the remedy without being better, and now look upon the temperance orator as a harmless creature, which every city and town is possessed of more or less, and that it is as hard to pass him by without hearing his singing as it would be to pass the village fool,

who comes with his eccentricity to bid him the time of day.

The loss occasioned by the prejudice to which we have alluded will be seen by the following:—The daily toiler, it is believed, will not do his work unless he is well watched. What we mean to convey is, not that a foreman is appointed to superintend and direct the workman, but a system of spying on the part of other officials in connexion with the firm who are not qualified to judge, which is approved of by the masters, and which puts the workman to his wits' ends to guard against. The man thus circumstanced must watch in turn, in order that he may not perhaps be caught drawing his breath for a minute or so during the long and laborious day. The official spy or pimp (who receives his wages for the most part out of the profits gained by this patient and bowed down labourer), if he happens to come upon a workman in such an act, makes a story of the same to the master, and straightway the prejudice is strengthened in the mind of the latter, who bitterly exclaims, "Oh, these working men, these working men," when it is most likely he had not the slightest cause for blaming them. A human being cannot be driven like a machine, and yet there are hundreds of employers who think they are at a loss if he does not keep going as constant, and in order to find out when he pauses encourages ignorant pimps to watch him. The greater loss to which we would direct attention is, that the workman is compelled, if he would get any quarters at all, to keep a look out in turn for such pimps, and in doing so loses more time than if he were trusted. The very notion that he is watched makes him nervous and unfit to do his work with a will. Confidence in the savage will beget faithfulness; kindness we have always found to beget kindness, and forgiveness and lenity to beget gratitude. In short, we have seldom known an appeal to the honest, hard-working man to do his duty to fail in making a favourable impression.

In the second place, the foppish upstart will be found to affect this prejudice, because it is the fashion amongst his conservative neighbours. This creature delights in showing off his importance by bullying and blustering, when simple instructions would suffice. So fond is he of being flattered by those in his employ that he appoints no deputy to act in his absence. He employs all workmen himself, which he does at no fixed time. The man seeking employment from such as he must be on the alert, flying from post to pillar in search of the great little man. When he is found his reply is not a business-like "Yes" or "No," but something like the following takes place, particularly if the applicant is a distressed labourer, whose wages are fixed at 12s. per week:—"Haw, fellow, what do you require?" "A job, sir"—and the man, if acquainted with the character of the person he is speaking to, touches his hat. "Haw, ahem!—let me see. Do you live in a respectable locality? Haw." "I can't afford it, sir." "Then what do you do with your money—drink it, I suppose?" "I have a wife and three children, sir, and I have been out of work for the last fortnight." "Haw. I suppose you are strong and healthy, and at all events can make a respectable appearance at church on Sundays?" "It is not the will that is wanting, sir." "But I say it is; you are all the same—an improvident, extravagant, wasteful lot. However, bring your shovel in the morning; I want you to screen some lime and sand. You are aware, I suppose, that I only pay 11s. to the men on the mortar-bank?—haw." The labourer touches his hat again, which act, perhaps, procures him the job, and the great little man is off to the building to look after his men, often to curse and swear at them as he struts about.

Humane men have formed themselves into a Society for the Prevention of Cruelty to Animals, and the owner of the horse that is overloaded will be fined for overloading him, or for working him with a sore breast or hoof. How many thousand unskilled labourers, if not mechanics, are there who have to work with maimed and jaded limbs, and, worse still, de-

pressed and drooping spirits, consequent on the number of their families and the meagre sum hardly earned when the work is obtained, which they have to live upon. The humane men who take upon themselves to say a word for the over-worked and under-paid labourer or mechanic, do so after the fashion of "live horse and you will get grass."

In the third place, this prejudice—which lessens the profits of employers, and which we have said arises from the master's ignorance of the technicalities in connexion with his trade—will be better understood if we suppose a case for illustration:—A timber merchant, let us say, who has spare capital at his command, takes it into his head to speculate in the manufacture of joiner's work. After building suitable workshops, and furnishing them with the necessary machinery, he employs a number of men, and then looks amongst his clerks for a man to place over them. He chooses Mr. Kilfiddlestick—a man whom he first knew through an advertisement, which said that he was quick at figures, and understood surveying and the measurement of timber. But the principal recommendation of Mr. Kilfiddlestick is that he is, perhaps, an ex-policeman, and consequently, in the mind of the timber merchant, a fit and proper person to direct joiners, since he is in the habit of drilling men. Mr. Kilfiddlestick's first attempts, of course, are horrible failures;—the men laugh at his unworkmanlike instructions, and soon find out that he has not the slightest knowledge of what is expected of him. When questioned about the way this or that job is to be done, he vaguely replies, "The usual way." Necessity is the mother of invention, why not the usual way? Those he directs are mere mechanics, and should know that way. The work, however, is not executed in a proper manner, and is returned. Whose fault is it? thinks the master. Not Kilfiddlestick's: oh, no, for he says he gave proper instructions. The temperance orator's speech, which the employer has often read or listened to, is wafted to him on the wings of memory, and he concludes that the man must be drunk who did the work that has been returned. Prejudice, blind prejudice, has taken hold of him, and there he stands a victim to the disease. Thus encouraged and patted upon the back, the ex-policeman bumbles away for a month, spoiling everything that he puts his hand to, and that a technically-educated man would have no trouble in doing. Another painful month passes over, and at length Mr. Kilfiddlestick, driven to his wits' ends, looks around for some one amongst the men upon whom he can rely without losing caste with his employer or endangering his post, which is worth double his former position. A happy thought this: see how he accomplishes his design. One Mr. Oshaver—who is a lion amongst his mates, but who is as humble as Uriah Heep to those above him—catches his eye. No fear of Mr. Oshaver superseding him, for, along with being very humble, he is willing to work fifteen hours for the pay of ten, and to be ready at all calls. Kilfiddlestick takes advantage of the practical knowledge of Mr. Oshaver, and bumbles on with his cry of "the usual way." When anything goes wrong, Oshaver takes the blame off his patron Kilfiddlestick, which is expected of him by the latter, and shoves it on to his mates, although he knows very well that Kilfiddlestick is wholly in fault. But what does he care so long as he is paid his wages, which have been raised by his patron? Thus the firm is superintended by a prejudiced master, a technically-ignorant manager, and a hypocritical and servile foreman. Will it prosper?

We have written this article principally for Irishmen, because we know that in England things are conducted immeasurably better. Occasionally there will be found a sacrifice of profit to vanity on the part of the employers, a great deal of bungling and jobbing amongst officials, but invariably—as far as the management of the workshops is concerned—the right man will be found in the right place.

We do not pretend to say that the majority of establishments in Ireland are carried on as

we have shewn; but that there are numbers we are well aware, since we could lay our finger on several. We would ask those who blame the Irish operative for the unfourishing state of Irish industries, to remember that thousands of Irish mechanics are earning a respectable livelihood in England and Scotland (where manufactories are better managed) with no pecuniary desire to return.

JOHN DOONER.

GLASTONBURY ABBEY, PAST AND PRESENT.*

In the early part of the sixteenth century the ancient Abbey of Glastonbury was in the plenitude of its magnificence and power. It had been the cynosure for the devotees of all nations, who, for nearly eleven centuries flocked in crowds to its Fane, to worship at its altars, to adore its relics, to drink in health at its sacred well, and to gaze in wrapt wonder at its holy thorn. And even now, in these later days, though time has wasted it, though fierce fanaticism has played its cannon upon it, though ruthless vandalism in blind ignorance has despoiled many of its beauties, it still stands proud in its ruined grandeur, defiant alike of the ravages of decay, the devastation of the iconoclast, and the wantonness of the ignorant. Although not a single picture, but only an inventorial description, is extant of this largest abbey in the kingdom, yet, standing amidst its silent ruins, the imagination can form some faint idea of what it must have been when its aisles were vocal with the chant of its many-voiced choir, when gorgeous processions moved grandly through its cloisters, and when its altars, its chapels, its windows, its pillars were all decorated with the myriad splendours of monastic art. Passing in at the great western entrance, through a lodge kept by a grave lay-brother, we find ourselves in a little world, shut up by a high wall which swept round its domains, enclosing an area of more than sixty acres. The eye is arrested at once by a majestic pile of building, stretching itself out in the shape of an immense cross, from the centre of whose transept there rises a high tower. The exterior of this building is profusely decorated with all the weird embellishments of mediæval art. There, in sculptured niche, stands the devout monarch, sceptred and crowned; the templar knight, who had fallen under an oriental sun fighting for the cross; the mitred abbot, with his crozier; the saint, with his emblem; the martyr, with his palm; scenes from Sacred Writ; the Apostles, the Evangelists; petrified allegories and sculptured story; and then, clustering around and intertwining itself with all these scenes and representations of the world of man, were ornamental devices culled from the world of nature. A splendid monument of the genius of those mediæval times whose mighty cathedrals stand before us now like massive poems or graven history, where men may read, as it were from a sculptured page, the chivalrous doings of departed heroes, the long tale of the history of the Church—of her woes, her triumphs, her martyrs, and her saints—a deathless picture of actual existence, as though some heaven-sent spirit had come upon the earth, and with a magic stroke petrified into the graphic stillness of stone a whole world of life and living things. The length of the nave of this church, beginning from St. Joseph's chapel (which we shall presently notice, and which was an additional building) up to the cross, was 220 feet, the great tower was 40 feet in breadth, and the transepts on either side of it, each 45 feet in length, the choir was 150 feet; its entire length from east to west was 420 feet; and if we add the appended St. Joseph's chapel, we have a range of building 530 feet in length.

Turning from the contemplation of this external grandeur, we come to a structure which forms the extreme west of the abbey—a chapel dedicated to St. Joseph of Arimathea. The entrance on the north side is a master-

piece of art, being a portal consisting of four semicircular arches, receding and diminishing as they recede into the body of the wall, the four fasciæ profusely decorated with sculptured representations of personages and scenes, varied by running patterns of tendrils, leaves, and other natural objects. The first thing that strikes the attention upon entering is the beautiful tripartite-mullioned window at the western extremity, with its semicircular head; opposite, at the eastern end, another, corresponding in size and decoration, throws its light upon the altar. On both the north and south sides of the church are four uniform windows, rising loftily till their summits nearly touch the vaulting; underneath these are four sculptured arches, the panelling between them adorned with painted representations of the sun, moon, stars, and all the host of heaven; the flooring was a tessellated pavement of encaustic tiles, each bearing an heraldic device, or some allegorical or historical subject. Beneath this tessellated pavement is a spacious crypt, 89 feet in length, 20 feet in width, and 10 feet high, provided with an altar, and when used for service, illuminated by lamps suspended from the ceiling. St. Joseph's chapel, however, with its softly-coloured light, its glittering panels, its resplendent altars, and its elegant proportions, is a beautiful creation; but only a foretaste or a prelude of that full glare of splendour which bursts upon the view on ascending the flight of steps leading from its lower level up to the nave of the great abbey church itself, which was dedicated to St. Mary. Arrived at that point, the spectator gazes upon a long vista of some four hundred feet, including the nave and choir; passing up through the nave, which has a double line of arches, whose pillars are profusely sculptured, we come to the central point in the transept, where there are four magnificent Gothic arches, which for imposing grandeur could scarcely be equalled in the world, mounting up to the height of one hundred feet, upon which rested the great tower of the church. A portion of one of these arches still exists, and though broken retains its original grandeur. In the transept running north and south from this point, are four beautifully-decorated chapels, St. Mary's, in the north aisle; St. Andrew's, in the south; Our Lady of Loretto's, on the north side of the nave; and at the south angle that of the Holy Sepulchre; another stood just behind the tower, dedicated to St. Edgar: in each of these are altars richly adorned with glittering appointments, and beautiful glass windows, stained with the figures of their patron saints, the Apostles, scriptural scenes or episodes from the hagiology of the Church; then, running in a straight line with the nave, completing the gigantic parallelogram, is the choir where the divine office is daily performed. The body is divided into stalls and seats for the abbot, the officers, and monks. At the eastern extremity stands the high altar, with its profusion of decorative splendour, whilst over it is an immense stained-glass window, with semicircular top, which pours down upon the altar, and in fact bathes the whole choir, when viewed from a distance, in a sea of softened many-coloured light. The flooring of the great church, like that of St. Joseph's, is composed of encaustic Norman tiles, inscribed with Scripture sentences, heraldic devices, and names of kings and benefactors. Underneath the great church is the crypt—a dark vault divided into three compartments by two rows of strong massive pillars, into which, having descended from the church, the spectator enters; the light of his torch is thrown back from a hundred different points like the eyes of serpents glittering through the darkness, reflected from the bright gold and silver nails and decorations of the coffins that lie piled on all sides, and whose ominous shapes can be just faintly distinguished. This is the weird world, which exerts a mysterious influence over the hearts of the most thoughtless—the silent world of death in life, and piled up around are the remains of whole generations long extinct of races of canonized saints, pious kings, devout queens, mitred

abbots, bishops, nobles who gave all their wealth to lie here, knights who braved the dangers of foreign climes, the power of the stealthy pestilence and the scimitar of the wild Saracen, that they might one day come back and lay their bones in this holy spot. There were the gilded coffins of renowned abbots whose names were a mighty power in the world when they lived, and whose thoughts are still read with delight by the votaries of another creed—the silver croziers of bishops, the purple cloth of royalty, and the crimson of the noble—all slumbering and smouldering in the dense obscurity of the tomb, but flashing up to the light once more in a temporary brilliancy, like the last ball-room effort of some aged beauty—the aristocracy of death, the coquetry of human vanity, strong even in human corruption. Amongst the denizens of this dark region are—King Arthur and his Queen Guinevere, Coel IL, grandfather of Constantine the Great, Kentwyn, King of the West Saxons, Edmund I., Edgar and Ironsides, St. Patrick, the Apostle of Ireland, St. David of Wales, and St. Gildas, besides nine bishops, fifteen abbots, and many others of note. Reascending from this gloomy cavern to the glories of the great church, we wander amongst its aisles, and as we gaze upon the splendours of its choir, we reflect that in this gorgeous temple, embellished by everything that art and science could contribute, and sanctified by the presence of its holy altar, with its consecrated Host, its cherished receptacle of saintly relics, and its sublime mysteries, did these devout men, seven times a day, for centuries, assemble for prayer and worship. As soon as the clock had tolled out the hour of midnight, when all the rest of the world was rocked in slumber, they arose, and flocked in silence to the church, where they remained in prayer and praise until the first faint streaks of dawn began to chase away the constellations of the night, and then, at stated intervals through the rest of the day, the appointed services were carried on, so that the greater portion of their lives was spent in this choir, whose very walls were vocal with psalmody and prayer. It was a grand offering to the Almighty of human work and human life. In that temple was gathered as a rich oblation everything that the united labour of ages could create and collect; strong hands had dug out its foundations in the bowels of the earth, had hewn stubborn rocks into huge blocks, and piled them up high in the heavens, had fashioned them into pillars and arches, myriads of busy fingers had laboured for ages at its decoration until every column, every cornice, and every angle bore traces of patient toil; the painter, the sculptor, the poet, had all contributed to its embellishment, strength created it, genius beautified it, and the ever-ascending incense of human contrition, human adoration, and human prayer completed the gorgeous sacrifice which those devotees of mediæval times offered up in honour of Him whose mysterious presence they venerated as the actual and real inhabitant of their Holy of Holies.

(To be continued.)

BRONZE PLATE FOUND IN LOUTH.

An interesting antiquarian discovery has recently been made at Gernonstown, county Louth, on the property of Lord Rathdonnell. Although there are numerous Danish forts and raths scattered throughout the country, yet, singular to say, the first Runic inscription discovered has been found on an antique bronze plate found in a tumulus, at Gernonstown. This tumulus has long been celebrated in Louth, and is in itself an extraordinary geological curiosity; and the pebbles, sand, and gravel, of an ancient sea-beach can be distinctly traced from it to the Castlebellingham railway station. Lord Rathdonnell some time ago decided to have the tumulus searched. After the workmen had excavated for some time at the southern side, they came upon a broad passage, flagged at the top, and running horizontally into the mound, terminating at a distance of about

* By O'Neil Travers Hill, F.R.G.S. Originally published in *Dublin University Magazine*, and more recently in book form by the author.

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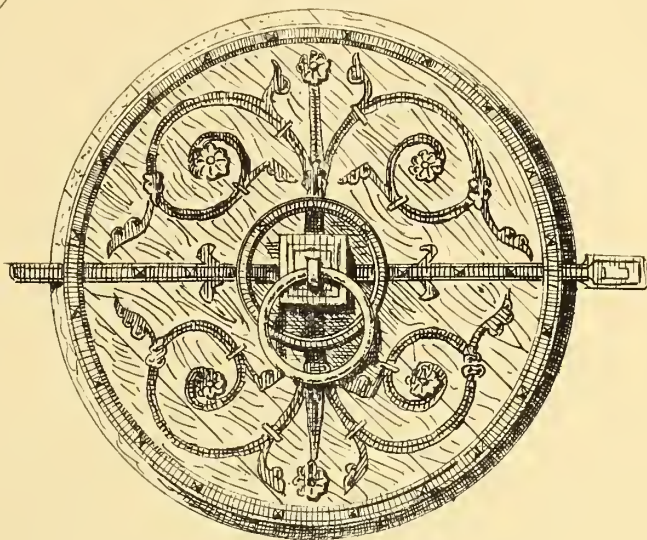


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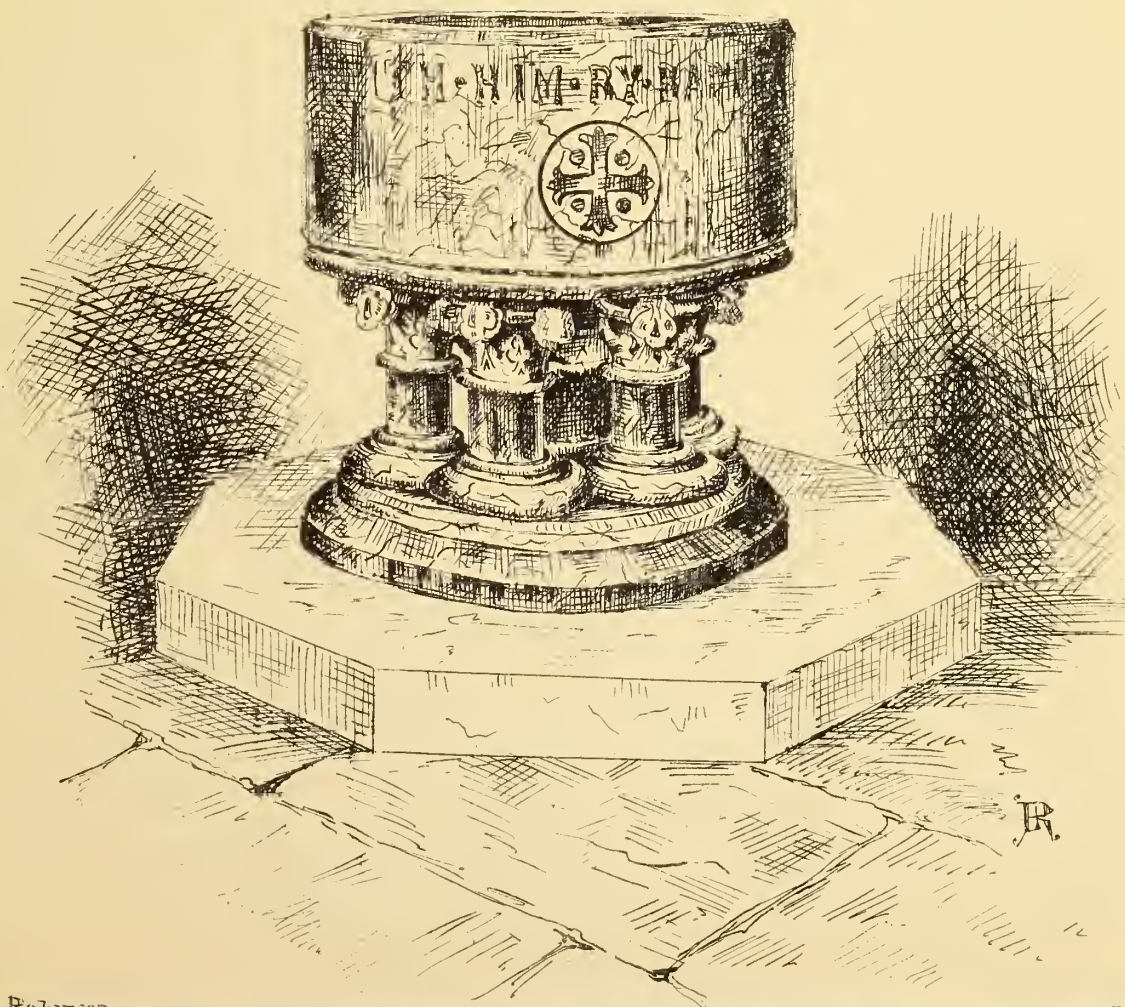
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ROSE WINDOW S. FINBARRS CATHEDRAL

W. BURGESS ARCHT



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fifteen feet from the part first discovered. The mound was then opened from the top, and a large pit dug down into it, until the termination of the passage was reached. It was found to consist of the same materials as the ancient sea-beach—gravel, sand, and water-worn or rounded stones; but through these was mingled some charcoal, many broken and half-burned bones, human teeth, portions of skulls, and large quantities of the other bones of the human body; and a very perfect bronze celt, or spear, of the most ancient type, was turned up. But about eleven feet from the surface or top of the mound the excavators came upon a small bronze plate, lying upon what the finder likened to an edging of snuff-coloured dust or burned paper. This plate, upon being carefully cleaned, was found beautifully ornamented on one side, in silver tracing, with the indented "whorls" and twistings so common on the very ancient Irish monuments, and particularly at Monasterboice, formed by the interweaving of a triple cord. On the other side it bore, in clear and well defined Runic characters, an inscription, which has been thus translated—"Tomi (or Tomri) of Solshofown this sword." The plate has been forwarded to the Society of Antiquaries, Copenhagen. This Tomri, or Tomar, is asserted to be the proud invader himself, from whom, Moore alleges, Malachy tore the collar of gold. He is frequently referred to in the Annals of the Four Masters, and Dr. O'Donovan in his translation states that Prince Tomar was evidently the ancestor of the Danish kings of Dublin, and was Earl Tanist of the king of Lochlann. He is also referred to in the "Book of Rights," where a tribute paid to him is mentioned, and a quotation from the Annals of Ulster, A.D. 847, says:—A battle by Malachy with the Pagan Danes at Fora, where fell Earl Tomar, the next in power to the King of Lochlann, and 1,200 men with him. In another place he is called Torc Tomar of Dublin. His ring or torque descended to the Danes of Dublin, and was preserved by them as an heirloom; but it and the sword of Caslus, his contemporary, were carried off from Dublin by Malachy in 994, and not torn from the neck of the original wearer, as poetically described by Moore. The plate discovered in the mound at Ger-nonstown is a portion of the sword of this valiant Dane, and the snuff-coloured dust which lay around it when discovered was the remains of his sword-belt. The affair is now occupying the attention of learned antiquaries, and it will come before the Royal Historical and Archaeological Society of Ireland at its meeting next week.

SEWER VENTILATION.*

In maturing a complete scheme for the main drainage of a district one of the most important points that will present itself for consideration is the ventilation of the sewers, for, however perfect any system of drainage may otherwise be, it will prove defective in a most important particular if provision is not made for the escape of the effluvia given off from the interior of the drains. It is sometimes urged that a well-designed and carefully constructed system of drains should discharge all the sewage it receives before decomposition could set in, and if so, that there would not be any risk to health from inattention to the details of ventilation, as no evolution of gas could occur without decomposition. It may be admitted that properly-graduated and carefully-laid drains will continue self-cleansing to a great extent, but it is impossible to prevent the interior of drains from becoming more or less fouled by grease and other matters of an adhesive kind. This may take place in the best earthenware pipe drains, but when bricks come to be used the evil is enhanced, for even when the soundest and least absorbent material is employed there is still a considerable soakage of sewage into the substance of the brickwork, where it in-

evitably decomposes with the evolution of injurious products. The sides of a sewer, be it great or small, are subject to be alternately wet and dry, owing to the flow of sewage being periodic, that is to say, from its varying in quantity throughout the day. In the early part of the morning the discharge is comparatively small, but as domestic and culinary operations proceed the flow increases to a maximum, at which it remains for six or eight hours, according to the character and habits of the people of the district. From the maximum flow the volume decreases towards night, when the minimum flow occurs.

When regard is had to the great extent of surface that a long sewer will offer to this alternate soaking and drying, an idea may be formed of the quantity of rapidly decomposing matter that even a well-constructed sewer will retain, and the necessity for providing effectual ventilation, will be self-evident. But if it is an established fact that sewers, when laid down in the best and most scientific manner, require ventilation, what shall be said of those receptacles formerly employed for the removal of house refuse, in which lay stored hundreds of tons of the foulest deposit conceivable? In some towns, whether from economy or some other reason, these sewers of deposit are allowed to remain, and although the accumulations may not be allowed to the same extent as of old, still thorough ventilation will be a consideration of the first importance.

The effect of imperfect ventilation upon the health of any community is not at all times so manifest as it occasionally becomes under favouring circumstances, but still there is ample evidence to show that the weakly condition of those inhabiting the closer parts of towns is mainly due to the vitiated air they breathe, and that the principal sources of the impurity are either the public sewers or other repositories of decomposing organic matter. At certain seasons, however, such poisons appear to be possessed of very great activity, and then specific diseases set in that are distinctly traceable to the influence of the poison. It is notorious that in some towns, considered to be well drained, fever has continued to recur until the exciting cause has been discovered to come from the sewers, and no amount of care or caution sufficed to check the disease until a complete and well-devised mode of ventilation was applied to each house, and due precautions at the same time taken to have the sewers thoroughly flushed. . . .

The method of preventing the injurious effect of sewer exhalations is a matter upon which there has been a considerable divergence of opinion. The theory of some is that the sewers should, if possible, be perfectly sealed, so as to keep the gases from escaping into the air, as well, of course, as to prevent their entry into houses, whilst on the other hand it is considered by others a *sine qua non* that there should be a perfectly free communication between the inside of the sewer and the outer air, on the principle that free dilation and rapid diffusion would prevent the ill effect of the exhalations upon health. In this there can be little doubt that a middle course is the best and the most consonant with theory and practice. It is obvious that the principle of sealing the sewers as closely as possible, however sound it may appear at first sight, is not found to be feasible in practice. The density of the air in sewers is subject to fluctuations from various causes; and if a sufficiently free intercourse is not established with the outer air, the communication will inevitably take place through the sinks and other traps connecting the interior of houses with the public sewers, and so the very evil sought to be avoided will occur in a greatly aggravated degree. The effluvia in the sewer, having been confined for a considerable length of time, will escape in a highly concentrated condition, and proportionately more poisonous to those who are exposed to its influence. Such a state of things has been compared not inaptly to the experiment of exposing a bird or mouse under a bell glass, and subjecting the little animal to the influence of a poisonous gas. During

the night the windows and doors of a house are all closed, and then, if due care be not observed, and the drains securely trapped, the house will simply act as a receiver for the gases that are generated in the sewer.

In the metropolis, and in many of our provincial towns, we have the converse of this principle very perfectly illustrated. The sewers are freely ventilated by gratings opening directly into the street, and it must needs be admitted that the result is sufficiently unsatisfactory. No provision of any account has been made for the deodorisation or purification of the sewer air; and the result is that the vicinity of our street-ventilators is easily discoverable by the offensive smell that is experienced. Whatever system is to be finally adopted for the ventilation of the sewers, it is quite clear that it must be some improvement on that now in use, which even in the present state of knowledge on this subject is the reverse of creditable to those concerned.

This system of free circulation is open to another very strong objection. The density of the air in sewers is sensibly influenced by the pressure of the wind in stormy weather, and the same result follows as when the sewer openings are closely sealed—the house traps yield to the pressure, are broken through, and the gaseous contents of the sewers pass into the houses, perhaps during the night, when all doors and windows are closed, and so the occupants are brought under the immediate influence of the poison.

When it is borne in mind that the object of sewer ventilation is to prevent the escape of foul air from the interior of sewers into such situations that it cannot take effect upon the human constitution, the difficulties of achieving the object will not appear so great as some anticipate. In short, the whole theory of the process would appear to consist in equalising the pressure at the surface of the street. This cannot be done by admitting the access of air to the sewers through gratings of unlimited capacity, because the pressure of the wind very sensibly affects the pressure on the house traps, and the very object sought to be remedied is accomplished by two free ventilation. Equality of pressure within and without the sewer evidently cannot be accomplished by carefully sealing all openings, because a sudden flush of rain would displace so much of the air within the sewer, or rather increase its elastic force to so great an extent that in this event also the house traps would be liable to furnish a communication with the interior of the houses. There can be no difficulty in adjusting the ventilation openings into sewers so that they will be sufficient to restore equality of pressure, and yet not make them of such capacity as to allow the pressure of the wind to take effect as it will do when the gratings are very large. Unquestionably the best method of accomplishing this end would be by small pipes carried up the adjoining houses to such a height as to clear the attic windows by several feet, and yet not so close to the chimney stack as to risk the sewer air being drawn down a cold flue into the house—a contingency that is very probable if due precaution be not observed. At one time the application of the rain-water pipes as ventilators was much in vogue, and they are still used to some extent in provincial towns. One of the provincial objections to the use of the rain-water pipe for a ventilation is that they are not made with air-tight joints, and consequently allow the escape of the effluvia from the sewers at every junction, the foul air finding its ways into the houses at open windows. A further objection is that the very time there is the greatest pressure in the sewer, and the gaseous contents are in a state of tension which occurs during heavy rain storms, the rain-water pipes operate by producing a down draught actuated by the downward rush of water, and the pipes necessarily become inoperative for their purpose. The rain-water pipes, too, opening as they do under the eaves of the houses, are not unfrequently quite close to a bed-room window, and there-

* Extracted from paper in Engineer.

is every risk of the foul air passing into the louse.

The main difficulties in the ventilation of sewers by pipes attached to dwelling-houses is the objection raised by the occupiers to such an arrangement. The Metropolitan Board of Works carried out an experiment by erecting in different localities about thirty of these shafts, varying from 4 inches to 6 inches in diameter, and apparently with very satisfactory results—in fact, it appeared that “in no instance had any complaint been made by the residents of smell or inconvenience arising from them,” but the objection raised to their use so far seems to have led to the conclusion that their universal adoption would be impracticable. The simple prejudice of ignorant people to such a matter as this is, after all, hardly a sufficient reason for relinquishing a system that is effectual to deal with a very important sanitary requirement. In every town thousands of people may be found who will object to everything that is being done for their benefit, and unless local authorities are furnished with some ample powers and less cumbersome provisions than they at present possess, they will find their efforts to a great extent obstructed by ignorance and prejudice.

When the use of ventilation is found inconvenient or impracticable, ventilation at the surface of the street may be carried out most effectually. This, as has been said above, should not be done by open gratings of large capacity. The inspection shafts and manholes can be furnished with suitable vessels, either boxes, perforated cylinders, or trays to contain the charcoal. The charcoal has been the two-fold advantage of purifying the air as it passes out, and of preventing the force of the wind from acting on the inside of the sewer by direct pressure.

ROAD ROLLING.

THOSE who have visited France and Germany frequently remark on the fine roads in these countries. Their excellent condition is entirely due to the practice of rolling which has long prevailed there, and which is properly regarded as one of the most valuable improvements ever introduced in road making. The substitution of the steam for the horse roller has been the last important advance in this direction; and Mr. Paget, in his valuable pamphlet on “The Economy of Road Maintenance,” &c., says that, “The French actually estimate the saving in steam rolling, merely through the longer duration of the road, at 50 per cent. as compared with horse rolling.”

The most approved process of road repairs with the steam roller is, after loosening the surface with the spiked rollers, to have it levelled in the customary way, and a layer of from 2 to 6 inches thickness of metalling laid upon a length of about 35 yards; the roller is passed two or three times over every portion of this length, working its way gradually across from one side of the road to the other until the flat surfaces of all the stones are brought uppermost. A covering of 1 inch of sharp clean sand is then spread over the entire surface and well watered from a cart or hose, after which the rolling is continued until the stones are thoroughly bedded and, as it were, conereted in their places, the surplus sand is then swept off, and the road is left in a finished, durable state. By this arrangement it will be observed that the stones, instead of being left loosely upon the surface to encounter the grinding lateral pressure of the wheels of the ordinary vehicles, are forced by direct vertical pressure into the soft bed prepared for them, along with a binding material that fills up the interstices and—affording support for the stones—keeps them in position with one surface only exposed to the abrading action of the wheels. The whole coating is thus consolidated, and there remains a surface hard and smooth enough to resist the disintegrating action of rain or frost.

The steam roller, by reason of its great weight, can, it appears, consolidate and pre-

pare for traffic, newly laid Macadam, at the rate of 2,000 square yards per diem, at an expense of about one penny for every 12 to 16 square yards, and the public is certainly much indebted to Mr. Paget for the very valuable collection of opinions which he gives of surveyors and engineers who have had ample experience of the benefits of steam road rolling. So satisfied indeed is this gentleman of the advantages to be derived from it that we understand he and some of his friends are at present forming a company to roll roads at a certain rate, and by which they of course expect to make money.

The Commissioners of the Central Park of New York City express a highly favourable opinion of the working of a steam road roller obtained by them from Messrs. Aveling and Porter. They report “that it has given great satisfaction, and that for Macadam roads, for the rolling of which the machine was adopted, it would be impossible to produce better results.” The borough surveyor of Sheffield thinks that his 25-ton roller “will increase the saving at least 40 per cent. over unrolled roads.” The surveyor of Maidstone borough reports that the “results obtained from using the roller (15-ton) are economy, durability, comfort, and uniformity of section; and the surveyor in charge of the western district of Islington Parish, London, who is using a 15-ton roller, believes that “no road should be made or repaired without the roller,” and says, “one of the great advantages in the wear of a rolled road is, that the stones are all at once consolidated into one mass, the corners of the stones being undamaged; while in a road where the traffic has to consolidate the new metal, the whole of the stones both on the surface and substratum become rounded, forming so many pebbles, which roll to and fro in all directions, giving an immense amount of labour afterwards.”

These few testimonials, out of several which we have seen, will, no doubt, be sufficient to show the great value of steam road rolling; and certainly the adoption of the system in Ireland would produce most beneficial results. We understand that the plan is extending rapidly in and about London and Liverpool, &c., but as yet we have not heard of any probability of steam rolling being tried in Dublin, in which the condition of the roadways is a matter of universal complaint, the wretched road metal, calpe, being almost at once ground into powder by the action of cart wheels, and becoming little more than mud afterwards on the falling of rain. It is stated, however, that it is in contemplation to get road metal from Bray Head, as is being done by the Rathmines Town Commissioners; and it is to be hoped also that the Corporation will consider the propriety of at once ordering a steam road roller, so as to get our roadways into something like a decent condition.

CORRESPONDENCE.

[It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.]

THE SCULPTURED EFFIGY AT CASHEL.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Your number for December 1st contains a sketch of a grotesque figure from the “Rock of Cashel,” and a description by Mr. Geoghegan. That gentleman appears to consider it as an idol or object of veneration, and of the Pagan age of the Gaedhil. My friend the Rev. James Graves pronounces it to be a Sheela-na-gig, one of a class of indecent representations frequently found built into ancient structures in Ireland, and supposed by some (as stated by Mr. Graves) to be amulets for averting the “evil eye.” Having seen many of this class of objects both in museums and *in situ*, I am of opinion that the effigy on the “Rock” is not one of them. The sheela-na-gig is always an indecent female figure, but entirely human: this is half

human, half reptile, the bust being female, the legs intertwined serpents; it is also deficient in those exaggerated attributes for which the former are remarkable; we must, therefore, consider it quite a distinct representation: it is evidently one of those symbolical figures so prevalent in Pagan times. It certainly bears a marked affinity to the description given of the dreaded Egyptian deity, Typhon, the symbol of destructive power, who was represented by a human bust terminating in twisted serpents, as is stated by Apollodorus “his legs terminated in two enormous snakes.” The same writer, referring to the Greek Cecrops, states “that he was of a two-fold nature, being formed with the body of a man blended with that of a serpent.” These hybrid deities were very common among the ancients: the Assyrians had their Dagon, half fish, half man; the Greeks their Nerides and Tritons. Montfaucon describes a sculpture over the gate of an ancient temple in Poitou; among the figures of other deities is that of a female naked, and having large serpents twining round her legs. I have met similar representations in several ancient sculptures, but cannot just now put my hand on them. As a matter of course this all refers to serpent worship, one of the most widely diffused of all the Pagan systems, and which we have reason to believe was prevalent in our own isle. Both the traditions and topography of the country bear unmistakeable evidence to the existence of this Cultus. The effigy is evidently not an architectural ornament—it has not the slightest affinity with the sculptured decorations of Cormac’s Chapel, the earliest ecclesiastical building on the Rock. Whatever may be its age, it is certainly a serpent symbol, and a relic of one of the Pagan beliefs of our island.

RICHARD R. BRASH.

Sunday’s Well, Cork.

ARCHITECTURE IN A “TAP-ROOM.”

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—May I ask J. K., who hails from Gorey, whether he condemns “Architecture in a Tap-room,” or whether his wit is so subtle that I have failed to see the *fine point*? As an architect—that is, as an “*archi*” “*tectus*”—I have been for past thirty years under the impression that I could lend an architectural harmony to even a lower building than a “tap-room.” I hope I have not been wrong in looking for

“Sermons in stones,
Books in the running brooks,
And good in every thing;”

and, although I never built a tap-room, I not be at all vexed in finding architecture (as I have before now found architects) in one.

VERITAS.

PAVINGS FOR STREETS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR.—I have seen a letter from a Mr. Edwd. Hull in your issue of the 15th ult., and it calls to my mind the time when I was a young architect and the Paving Board Corporation had the charge of our streets. We had then no talk as to trap rocks or diorites; the calpe or mountain limestone was largely used, and, where it was considered dangerous on the sideways, was channelled in grooves for the convenience of foot passengers. Since then granite has taken the place of calpe, with great advantage.

Although an architect not admitted to membership in the *great* association, you are aware that I do not occupy any particularly low place in the profession, and without giving my name I may, I hope, be permitted to say that the great evil of Dublin lies in the streets being paved with a most inferior description of Welch setts, instead of our own native stones, which can be had in great quantity in various parts of Ireland. All through the west portion of Cork a porphyritic greenstone is to be had, superior by far to any thing yet tried. But I would not think of referring to the Geological Survey on this

subject—a survey that colours and sets forth the carboniferous slates of the district as red sandstone, and the only bit of sandstone in the district—*i.e.*, the vein under Skull Church—as a slate is not the guide I would wish to go by, unless I had some object in view, such, for instance, of discouraging English capitalists. But to resume. If (as we all can remember) the streets were well kept under a paving corporation, why not have a paving corporation now, or a paving committee, or some other body to whom our hard-worked Corporation could delegate its powers, and thus gain time for the political controversies that engage the attention of its members?

VERITAS.

L A W.

COURT OF QUEEN'S BENCH.—Dec. 20.

(Before the Lord Chief Justice and a Special Jury.)

Richard Martin v. the Corporation of the City of Dublin.—This was an action to recover £1,000 damages for alleged negligence on the part of the Corporation for not having properly constructed, and maintained in proper repair a certain sewer running under plaintiff's yard, and office Sir John Rogerson's quay, whereby they were flooded and his goods damaged. The defence was a traverse of the negligence. In March, 1866, plaintiff purchased the premises he now occupies as a timber yard, offices, and stores. From that time, as alleged, he suffered much from an offensive smell arising from the sewer in question, and in November, 1866, he made the first of a series of complaints to the Corporation. The nuisance remained unabated until the 30th January in the present year, when the sewer burst, and the entire premises of plaintiff were, as stated in evidence, flooded with noxious sewage. On the 31st Mr. Martin wrote to the City Engineer stating what had occurred, and signifying his intention to seek redress. Receiving no reply, he again communicated with Mr. Neville on the 2nd February, informing him that he intended to have a survey of the damage, and requesting that a gentleman representing the Corporation should be instructed to attend. He received a reply to his first communication on the 9th February; it had in the interim been before No. 1 Committee—and they stated that "they could not advise the Corporation to make compensation for an accident which it was not in their power to control or prevent." The surveyors met, one representing Mr. Martin, and one representing the Corporation, and the damage to the timber, &c., was estimated at £780 11s. 2d., and plaintiff stated that he had, in addition, to pay the sum of £171 10s. for raising a floor.

The examination of witnesses occupied the attention of the court for over three days. The evidence was of the usual conflicting character. Amongst those examined were John McCurdy, C.E., J. Rawlinson, Government Inspector of Waterworks. Parke Neville, C.E., &c.

Sergeant Armstrong summed up for the defence, arguing that the Corporation had used all proper and reasonable precaution in the construction and maintenance of the drain, and that the flooding of plaintiff's premises was the result of an extraordinary rainfall—an act of Providence, and not the result of negligence on the part of the Corporation. It was well known that that part of the city was very low-lying, the College Park being, in fact, some 8 feet below the level of the bed of the river; and the volume of water caused by the rain on this occasion washed down through the sewers at the time that the flap at the mouth of the sewer was closed by the tide, and this necessarily sent the sewage back on the premises of the plaintiff.

Mr. Gerald Fitzgibbon, in replying on the part of plaintiff, combated each point relied on by defendants, and claimed to show that they had not used reasonable diligence in the construction, cleansing, or maintenance of

the sewer. It had been proved that for six years the sewer had not been inspected or cleansed, and, though it was plainly the duty of the officers of the Corporation to inspect and maintain the drainage system in a proper state of efficiency, the inspector himself had informed them that it was not his habit to inspect at all, unless when complaints of a particular sewer were made. It had been stated that the Corporation had £4,000 for each side of the city available for this purpose; but if they had £4,000 in the world, their duty was to construct the sewers properly, and to begin at the outlet, making that with sufficient vent, and from that point continue the sewer so far as they required to drain. There was one point in the evidence which he found it difficult to approach with any degree of patience—namely, the suggestion made by one of the scientific witnesses for relieving the plaintiff's place from the overflow. He said the plaintiff should raise his premises to a higher level! That would certainly relieve the plaintiff, but at the expense of the dense population in the neighbourhood. The sewage would find its way into the habitations of the poor, into the cellars; and, percolating the ground, would poison the wells from which they drew water for domestic purposes, carrying pestilence and death among the people. He reminded the jury that his client had frequently complained of this sewer without obtaining a remedy, and he called upon them to give him such an amount of damages as would compensate him for the loss he had sustained.

The Lord Chief Justice in charging the jury called their attention to the question of what were the rights of the plaintiff, and what were the liabilities of the defendants. The plaintiff paid the sewer rate, and was entitled to the benefits intended to be conferred by the application of that rate. The defendants were entrusted with certain powers by their Acts of Parliament, and they were likewise subject to certain liabilities. They were bound to maintain the sewers and drains in such reasonable and proper repair that the houses of the citizens should not be injured by reason of the want of such repair and good condition. The defendants did not raise any tricky defence to the action; they did not traverse the duty; they said they discharged the duty. Now, as a corporation, or as trustees, although not making a farthing for their own benefit, but only performing a public duty, they were liable for the negligence of that duty; and he might tell them that negligence meant the omission to do something which they ought to do, or the doing of something which, as reasonable men, they ought not to do. His lordship cited several decisions pronounced by high legal authorities, and which were applicable to the case. In one instance an action was brought by the owner of a vessel against the Mersey Docks Board to recover damages for negligence in not keeping a dock in a proper condition. The plaintiff was bringing his vessel into one of the docks at Liverpool, when she struck against some obstruction, and became fast, sustaining injury. He had paid the customary tolls, and it was finally decided, on appeal before the House of Lords, that the Docks Board were liable, as, having received tolls for the purpose of keeping the docks in a proper state for the admission and accommodation of vessels, they had not used all proper and reasonable diligence. There was another analogous case in which an action was brought to recover damages for the bursting of some water-pipes. It was proved, however, that all reasonable precautions had been taken, and the damage had been caused by the plugs being forced out in consequence of an extraordinarily severe frost; and the defendants were consequently not held liable. It had been put forward on the part of the defendants in the case before them that the injury was caused by an extraordinary flood. They should be satisfied on this point that it was an unusual flood, and that it was such an occurrence as could not be foreseen or anticipated. It had been stated in evidence that the Corporation had constructed the sewer

and that prior to the cause of action the premises now occupied by the plaintiff were flooded. It was therefore a question for the jury whether it had been properly constructed, and next whether it had been kept cleansed, and in proper repair. They had the evidence of the man who had gone into the sewer, and who told them there was an accumulation of stuff, in some places two feet deep. The learned Chief Justice referred to the evidence in detail, and concluded by saying that the question was whether the damage Mr. Martin complained of—and that he had sustained an injury was certain or any portion of the damage, had been caused by the want of the exercise of reasonable diligence on the part of the defendants, who were bound by the liability that rested on them to exercise that diligence—who had authority from the Legislature not merely to construct, but to repair; not merely to repair but to enlarge those sewers wherever damage was likely to be sustained; or whether what had happened had happened by the act of God. If the latter, and that it could not be foreseen or anticipated, then the Corporation were not responsible. But if, on the other hand, there was a want of reasonable care in cleansing, repairing, or in the construction of the sewer, then, in his opinion, in point of law the defendants were responsible. The question was not out of what particular portion of their funds they ought to make good the injury. The jury must consider whether the plaintiff had sustained any injury, and, if so, to what extent; and to that extent, if the injury had been caused by the defendants' negligence, or omission or commission, they should award him compensation.

When the jury had retired, counsel on both sides handed in some technical objections to his lordship's charge. After a short absence, the jury having returned to court, the foreman stated they could not agree to a verdict. The Lord Chief Justice then explained one or two points on which they said they felt some difficulty.

They again retired, and in a few minutes returned with a verdict for plaintiff—damages £756, and 61. costs.

Counsel for plaintiff—Messrs. D. C. Heron, Q.C.; G. Fitzgibbon, and Corrigan, instructed by Messrs. D. and T. Fitzgerald. For defendant—Sergeant Armstrong, Mr. I. Butt, Q.C., and Mr. Carton, instructed by Messrs. Smyth and Barry.

SECOND QUEEN'S BENCH.

A. and N. Hammond v. Captain Ralph Smith.—This case was heard in the Court of Queen's Bench on the 9th ult., and subsequently referred to the arbitration of three of the jurors. After a careful investigation during four days of the matters in dispute, the arbitrators awarded the plaintiffs £250 and costs above the sum (£156) originally lodged in court.

We may mention that the works during their progress were measured for the Messrs. Hammond by Mr. William Doolin, and a subsequent survey made by Mr. Cleere, several months after their completion.

In his opening statement to the jury, counsel for plaintiffs remarked that he was happy to be in a position to state that his clients, although representing a firm over sixty years in trade, never until the present action had been engaged in any law connected with building transactions.

Counsel for plaintiffs—Sergeant Armstrong, Messrs. Exham, Q.C., and Gerald Fitzgibbon, instructed by Mr. George Riddick. For defendant—Messrs. Macdonogh, Q.C.; Falkiner, Q.C., and Ryland, instructed by Mr. P. J. Mayne.

THE BURLEIGH ROCK-DRILL.

This drill, so well known on the other side of the Atlantic for its remarkable operations, especially in connection with the heavy works at the celebrated "Hoosac Tunnel," and in the removal, by the United States Government, of the rock at "Hell Gate," is now attracting a good deal of attention in Eng-

land. The machinery consists of the drill and various forms of carriages or holders, upon which the drills are mounted for convenient application to the different works on which they may be employed. The main elements of the drill are the cage, the cylinder, and the piston. The cage is merely a trough, with ways on either side, in which the cylinder, by means of a feed screw and an automatic feed lever, is moved forward as the drill cuts away the rock. The piston moves backwards and forwards in the cylinder in the usual way, and is propelled and operated on substantially like the piston of an ordinary steam-engine. The drill point is attached to the end of the piston rod, which is a solid bar of steel; the piston rod is rotated as it moves backwards and forwards by suitable mechanism, and the drill point and the solid steel piston rod alone receive the shock of the blow. The work capable of being done by this drill appears to be something extraordinary. In hard rock like granite, gneiss, iron stone, and quartz, the tool will progress at the incredible rate of 6 in. to 1 ft. per minute, and it can bore holes up to 5 in. diameter, and will on an average go through 120 ft. of rock per day, making forty holes 3 ft. deep and 2½ in. diameter. This drill moreover can be used at any angle and in any direction, and will drill and clear itself to any depth up to 20 ft. By its use the following saving is claimed for it, viz.:—On drilling, of about £5 per day as compared with hand labour. On steel, the expense in drills is said to be reduced to about one-tenth of what it is when sledge and hammer are used, and the average depth a 2½ in. drill will bore in hard rock (like Aberdeen granite) without sharpening is about 15 to 20 feet. It is also stated that, the "put out" being increased four or six fold, by the use of the rock drill the general expenses, such as pumping, ventilation, interest of capital, and maintenance of staff, &c., are reduced per ton of material extracted in a like degree. High testimony is certainly borne in America to the great efficiency of the Burleigh drill, which it appears is now being brought to bear on the Andes in Peru, and it is expected that it will be of immense advantage in the carrying out of the gigantic works connected with the great project of the Darien Ship Canal. A few months since some important experiments with the drill were made in England, and at different times, in the presence of influential engineers and contractors, and the results were eminently satisfactory. When tried on a block of the hardest Aberdeen granite the drill was found to perforate a 3-foot block, with a clean 2½-inch hole, in three minutes, or at the rate of 1 foot per minute; and, as a rule, 15 ft. can be cut with ease without changing the cutter, and at nearly equal speed throughout. The other important feature about this drill is that it can be worked at any point, at any angle, and is controlled with the most perfect ease. In deep shafts and in tunnels, where steam cannot be used as a motive power, compressed air is successfully employed to work the drill by means of the "Burleigh Patent Air Compressor," and which is likewise a very effective machine; and we understand that orders for the drill for collieries and granite works on the other side of the Channel are being now executed, and as several important railway and other works are about being carried out in Ireland, the performances of the Burleigh drill will be interesting to our readers, and we shall be happy to give them any further information on the subject in our power.

MEMORIALS.

The "Downshire Memorial" committee, in deference to the wish expressed by Major McClinton on behalf of his lordship's family, have resolved to construct a statue at Hillsborough, in accordance with the resolution passed at the general meeting of subscribers and the meeting of the committee held on the 14th October last. The committee agreed also to the following resolutions:—"That

Mr. Lynn be requested to meet the committee at their next meeting, and submit to them a sketch or model of a suitable statue, with an estimate of the cost in different materials and dimensions, embracing all details." "That, although it has been decided to request Mr. Lynn to submit a model, it is the determination of this committee not to be bound to his design, if any other artist should send in one which would appear to be more desirable." In a letter to the committee, the Rev. Henry Henderson, Holywood, writes of the deceased nobleman:—"It is very gratifying to see gentlemen of all creeds and parties heartily co-operating to perpetuate the name and worth of the ever-to-be-lamented Lord Downshire. As an nobleman, he was an illustrious ornament of his order; as an Irish patriot, he truly loved his country; as one of the best of resident landlords, he lived in the hearts of his people; and, as a friend, unchanging and sterling, all who were honoured with his friendship must lastingly lament his loss."

A monument to the memory of the late Rev. Edward Marks, D.D., has been placed in St. Patrick's Cathedral. It has been erected by public subscription, and consists of a highly-finished mural tablet, surmounted by a bust, presenting a remarkably truthful likeness. The inscription is as follows:—"In memory of the Rev. Edward Marks, D.D., Minor Canon, Dean's Vicar, &c., who laboured zealously and faithfully in this cathedral and deanery for upwards of thirty-two years. The schools, especially the infant school, which he established, were the first and constant object of his fostering care. Died 7th May, 1869, aged 77 years. 'That I may win Christ and be found in Him.'—Phil. iii. 8." The monument was executed by the Messrs. Farrell, Lower Gloucester-street.

The statue of William Smith O'Brien, recently placed on the south side of Carlisle Bridge, was unveiled on Monday last. The chief Magistrate of the city occupied the chair, and addressed the assemblage.

THE BUILDER'S MONUMENT.

Dig the trenches broad and deep,
That the solid blocks move not,
In their long and patient sleep
Through the centuries to come;
Warmed by earth's internal heat,
They will bear their mighty trust
When the workman turns to dust,
Sleeping in the churchyard dumb.

Working in the trenches there,
Blouse bespotted with clay and ooze,
Hands so hard, and brown, and bare,
Lifting at the heavy rock,
While he spreads the fresh cement
Think, how long his work will stand!
Then his deed is noble, grand;
He has nothing to lament.

Slowly up above the street
Rises now the fair-faced wall,
And the hurrying human feet
Halt not as they pass along;
Click, click, click, the trowels ring,
Careful! let the bond be sure!
So the work may long endure,
Only honest work is strong.

Slowly, but with stately grace,
Rises up the massive wall,
Arch and column in their place,
While behind the workmen stand
Working with an earnest will:
On the street men stop and gaze
Wondering now,—and well they may,—
As the lights and shadows play
On the new creation's face.

Eye and bye the deed is done,
And the temple stands out bold
In the shining of the sun;
But, the workman, what of him?
Ah! his glory will not fade,
For his memory will last
While the centuries sweep past,
In this monument he made.

—American Builder.

WOOD STAINS.

"Good wine requires no bush," is an old saying. We have frequently been asked to print from a *Standard* source certain statements as to the millions of hogsheds of wine imported by a noted firm in the trade, whose wines require "no bush." The same adage is not perhaps fairly applicable to what we are about to bear testimony to, so far as "bush" is

concerned. But to the point. It is generally acknowledged that the wood stains produced by Mr. F. Swinburn, Southwark Bridge Road, London, are superior to any others in the market. We can testify to their extensive use in this country in buildings where they have been specified for by many architects of eminence. His agents in Ireland are Messrs. Boyd and Goodwin, Merrion-row, in this city, and Messrs. Dobbin, Belfast.

BOOKS RECEIVED.

Kilmalkedar, County Kerry; Templenahoe, Ardferf. Drawn by Arthur Hill, B.E., A.R.I.B.A. Cork: 1870.

ABOUT two months ago we took occasion to notice the appearance of the first section of Mr. Arthur Hill's illustrations of the Ancient Architecture of Ireland. We have now to draw the attention of our readers to the very praiseworthy task undertaken by Mr. Hill in the publication of a series illustrating Celtic Churches, parts 1 and 2 of which are before us. The first part ("Kilmalkedar, near Dingle") comprises eight plates 12½" × 10", together with four beautiful photographs. The second part ("Templenahoe, Ardferf") has six plates and four photographs. The lithographs in these parts have been well executed by Messrs. Whiteman and Bass, London; the photos were specially taken by Mr. Hudson, Killarney. Our readers are, no doubt, aware that Mr. Hill received, in May last, from the Royal Institute of British Architects a medal of merit for his drawings—a well merited distinction. In describing the church at Kilmalkedar, Mr. Hill says:—"The church is a richly decorated structure, with sloping jambs to both window and door openings; built of freestone from the neighbouring cliffs; an excellent specimen of masonry. It was originally covered by a stone roof constructed on the corbel principle, without the employment of the arch, that is, each stone was horizontally bedded, but over-lapping until the sides met, and were covered by a single course of flags and heavy stones to form the ridge. The side walls are terminated by a string course, from which the roof slanted directly to the ridge; while inside the form was curved gradually from the upright line of the walls to the apex. This interesting specimen of the Hiberno-Romanesque, or Celtic style, is the more remarkable from its position in such a remote part of the country, almost the very western point of Europe." "There is no positive evidence of the date of either the original building or its addition. But none of the work can be earlier than the twelfth century, knowing as we do, that fine-jointed masonry and carving were not in use in England or Normandy before that date, and it being far from likely that the most western island of Europe took the lead of those countries in the art of church building." We can safely recommend these works to the notice of our friends. Mr. Hill's address is 22 George's-street, Cork.

Cassell's Technical Educator. London: Cassell, Petter and Galpin.

This work is intended to be the technical series of "Cassell's Popular Educator." In each number there are sixteen pages of well-printed and useful matter, accompanied by suitable wood engravings. Amongst the contents of the part before us we find chapters on "Drawing," "Chemistry," "Weapons of War," "Animal Products," "Building Construction," &c. If a study of some of these topics will tend in the smallest degree to promote the technical education of our artisans, we heartily wish the publication every success, and congratulate the publishers for their spirit in issuing it.

THE WONDERFUL LAMP.

THE facts I am about to narrate prove that somehow or other a good deal of the red-tape of the old offices had been carried into the new department:—Early last summer a Government official at Chatham found that a small lamp he used was out of repair. Under the old and much-abused system the necessary repair could have been effected on the spot in an hour or two by the Royal Engineers. Under the new and much-lauded system the following course was adopted:—The official wrote to the commanding officer reporting the fact. The report was forwarded by the officer commanding to the assistant-controller at Chatham. The assistant-controller sent it on to the controller of the district, and the controller of the district, when it came to his turn, got rid of it by sending it to the controller of Great Britain and Ireland, and the controller-in-chief forwarded it to the War Office. After the lapse of a week or two the War Office turned its attention seriously to the matter, and a reply eventually reached the official, having percolated through the same channels inversely, to the effect that the lamp would be sent for and repaired at Woolwich. One fine day accordingly there appeared at Chatham a two-horsed waggon attended by a detachment of mounted soldiers, who reported that they had come—very probably they had “billeted” a night on the road—for something, they knew not what. After a good deal of inquiry it turned out that they had been sent for the lamp. In time it was secured and packed on the waggon, and carried off in triumph. Weeks flew away—the summer passed, and winter drew near. The Aladdin of the story, who had been drawing expensive sperm candles from the public store, at length though he ought to “jog” the memory of the authorities on the subject of his wonderful lamp. Accordingly he asked the officer commanding, who asked the assistant controller, who asked the controller of the district, who asked the controller-in-chief, who asked the War Office what the deuce had become of the lamp. I send you the reply. Tell it not in Gath, as it might be regarded as a joke; but it's no joke, I assure you. The War Office informed the controller of Great Britain, who informed the controller of the district, who informed the controller of Chatham, who informed the officer commanding, who informed the proprietor, that his lamp had been duly repaired, but that owing to a fatality it had been delivered, or was in course of delivery, at—where do you think? At Ceylon! Perhaps the odd coincidence that Chatham and Ceylon each boast a capital “C” may have something to do with the matter. Be that as it may, it is evident that there are circumstances over which controllers to any amount have no control.—*Cor. of Glasgow Mail.*

MISCELLANEOUS.

AMERICA'S WONDERS.—The *American Engineer* thus catalogues a few of America's wonders:—The greatest cataract in the world is the falls of Niagara, where the water from the upper lakes forms a river of three fourths of a mile in width, and then, being suddenly contracted, plunges over the rocks in two columns, to the depth of 175 feet. The greatest cave in the world is the Mammoth cave of Kentucky, where anyone can make a voyage on the waters of a subterranean river and catch fish without eyes. The greatest river in the known world is the Mississippi, 4000 miles long. The largest valley in the world is the valley of the Mississippi. It contains 500,000 square miles, and is one of the most fertile regions of the globe. The greatest city park in the world is in Philadelphia. It contains over 2,000 acres. The greatest grain port in the world is Chicago. The largest lake in the world is Lake Superior, which is truly an inland sea, being 430 miles long, and 1,000 feet deep. The longest railroad in the world is the Pacific railroad, over 3,000 miles in length. The greatest mass of solid iron in the world is the mountain of Missouri. It is 350 ft. high and two miles in circuit. The best specimen of Grecian architecture in the world is the Girard College for Orphans, Philadelphia. The largest aqueduct in the world is the Croton Aqueduct, New York. Its length is 40½ miles, and it cost 12,500,000 dollars. The largest deposits of anthracite coal in the world are in Pennsylvania, the mines of which supply the market with millions of tons annually, and appear to be inexhaustible.

A LILLIPUTIAN NEWSPAPER.—We have received a rather curious specimen of French ingenuity—a copy of *Le Soir* of the 25th of November, compressed by means of photography, into a sheet measuring only three and a half by two and a half inches. This Lilliputian journal, nevertheless, presents the full contents of an ordinary full-sized number, and, with the aid of a good microscope, can be read easily. It is printed on one side only of the little sheet, and is headed with a notice that it must be read as a transparency,—that is, against the pane of a window, and with a magnifying glass. This reduction of a newspaper to a very small size is not new; it has been often done as a photographic curiosity; but it is the first time that we have seen its application to practical business purposes; for in this way *Le Soir* can be sent out by the balloons in immense quantities, without any curtailment of its usual contents.—*Daily News.*

“How to ventilate underground railway carriages—how to blow bundles of letters from pillar to post through underground tubes—how to make a good bright green colour without a mixture of arsenic—how to produce combustible flint—how to prevent the

waste of water at drinking fountains—how to make a durable pavement of asphalt—how to render the surface of common roads more fit for traffic—how to manufacture mouldings, foliage, statuettes, from a mixture of glycerine and litharge—how to utilise sewage, prevent boiler explosions, and the injurious action of lead pipes on water—how to send two messages along a telegraph wire (one from each end) at the same time—how to increase the break-power of railway trains, and thereby diminish the chances of accidents—these are among the notions, inventions, and speculations which have been put forth within the past few weeks. They show a fair amount of activity for what is commonly called the dead season of the year.—*Chambers's Journal.*

A German machinist has lately invented a simple turbine wheel, as a motor for a sewing machine. This is said to occupy a very small space, and to be very easily attached to any hydrant or water-pipe. As constructed by him, it is 1 ft. wide and 6 in. high, composed of brass and iron, protected against rusting, and enclosed in a case. The apparatus moves without noise and scatters no water, so that it can be as well placed in the parlour as in the workshop. The transfer is effected by means of belts; and the cost of the article is only about ten dollars.

It is lucky there are no trades unions among elephants, for an elephant “on strike” is as destructive as a Sheffield unionist. An elephant employed by the Government of India in hauling teak logs, for the Forest Department, in the Ananallay Forest, lately brought about a suspension of operations for above a fortnight. He began by knocking down his keeper, but, luckily, did not kill him. He then made for the huts of the keepers, whose wives and families were driven into the jungle. He displayed his skill in pulling down the huts, smashed up the carts and implements, and destroyed a quantity of provisions stored up for his brother elephants. After keeping the settlement in alarm for some fifteen days, he was shot in one of the legs, and then caught and chained.—*Athenæum.*

THE PERFECTION OF MECHANISM.—“In short, all the improvements for convenience and comfort, dating from a state of barbarity to one of high civilisation, are but the cumulative results of inventive ingenuity; and in no instance is this more clearly seen than in the history of those beautiful inventions which have from time to time been brought to bear upon the science of Horology. Trace its history from the time of the Romans with their clepsydra or water-clock, and Alfred with his candles, from hour-glasses and sun-dials, down to that miracle of ingenuity ‘The Watch,’ and see how improvement has succeeded improvement, until at last those now manufactured by Benson, of Ludgate Hill, and Old Bond Street, London, Watch and Clock maker to H.R.H. the Prince of Wales, have been characteristically described as ‘the perfection of mechanism.’”—*Standard.* For prices of Watches, Clocks, Jewellery, Chains, &c., see Illustrated Pamphlets, which are sent post free on receipt of 2 stamps.

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Depots, at
56, NORTH-WALL, DUBLIN,
AND
QUEEN'S-QUAY, BELFAST,

Where will be found the largest, most varied, and CHEAPEST
assortment of Scotch Fire-Clay Goods in Ireland, and *Second*
None in quality.

The following, among others, are the goods kept in Stock:—
White Fire Bricks, for facing
buildings, of every design.
White Fire Bricks, for furnaces.
Glazed Sewer Pipes, with patent
or socket joints.
Ornamental Chimney Cans.
Flue Linings and Ouncings.
Joist Shields.
Balusters.
Wall Coping, various sizes and
shapes.
Garden Edgings.
Ornamental Quoins.
Finales.
Stable Pavin Bricks.
Goods can also be shipped by steamer or sailing vessel from
Glasgow or the Works to any Port in Ireland.

TO FARMERS AND OTHERS.
Field Drainage Pipes, from 1½ inch to 6 inches in bore, of
the best quality, at moderate terms.
Prices and all particulars on application. Inspection in-
vited.

ROBERT BROWN AND SON,
DUBLIN DEPOT—56, NORTH-WALL.
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CEMENTS.
JOHN BAZLEY WHITE & BROTHERS'
CELEBRATED
LONDON ROMAN CEMENT,
LONDON PORTLAND CEMENT, and
KEENE'S MARBLE CEMENTS,
Now Sold at greatly Reduced Prices, by
C. LAVENDER,
66, GRAFTON-STREET, DUBLIN.

TESTIMONIALS.
From WILLIAM TITE, Esq., M.P. for Bath, and Architect of the
Royal Exchange, London.

House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have
used both the sorts of Cement manufactured by your firm, and
that of Messrs. Francis and Son; I mean the Cement usually
called Roman Cement, or the more recent introduction of
Portland Cement. I believe these Cements, manufactured by
either of your firms, to be equally good. I know no difference,
chemically or practically, between them; and I should
use, and authorize to be used indifferently, either one or the
other. You are at liberty to use this note, if you think it ne-
cessary.—I am, Dear Sir, your obedient servant,
Messrs. White & Son. (Signed) WILLIAM TITE.

From R.O. MINNIE, Esq., Surveyor to Board of Ordnance, London.
War Office, Pall Mall, London, S.W.,
3rd March, 1864.

GENTLEMEN,—In reply to your request, I have much pleasure
in stating my favourable opinion of the quality of your
Portland and other Cements, which have been extensively
used in the Public Works connected with the War Department
at home and abroad, especially in several of the fortifications
now being erected in this country. On all occasions within
my knowledge the quality has been equal to that of any other
manufacturer, and has given great satisfaction.—I am, gentlemen,
your obedient servant,
(Signed) R. O. MINNIE, Surveyor.

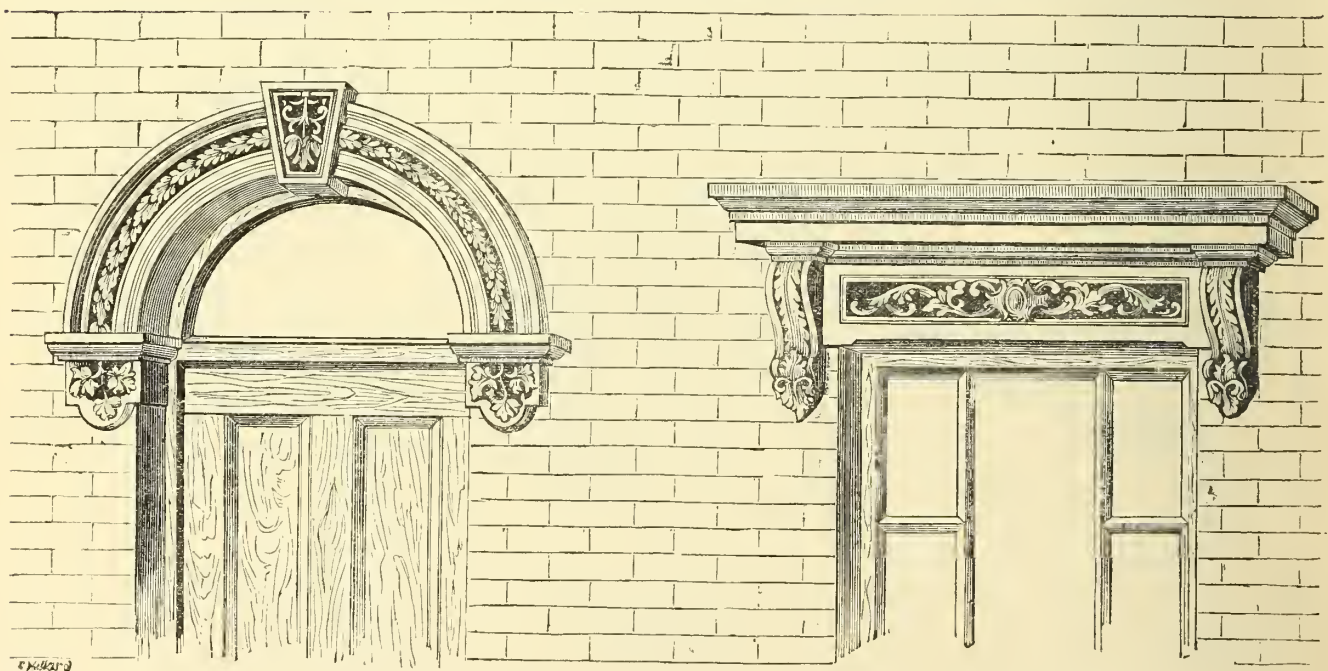
GAS CHANDELIERS AND FITTINGS,
LEAD PIPE, SHEET LEAD,
BRASS WORK OF ALL KINDS
FOR PLUMBERS, IRONMONGERS, ENGINEERS,
AND BUILDERS,
On the best terms by the MANUFACTURERS,
WILLIAM CURTIS AND SONS,
99, MIDDLE ABBEY-STREET.
Particular attention is being paid to the Manufacture of
HIGH PRESSURE WATER FITTINGS at the Factory and
WHOLESALE WAREHOUSE, CHANCERY-LANE.

CAST-IRON DOOR AND WINDOW HEADS.

The attention of ARCHITECTS and all connected with the Building Trades is called to these elegant appliances, which will

SUPERSEDE THE USE OF STONE
IN MANY PARTS OF THIS COUNTRY.

A Variety of PATTERNS has been prepared, and
A Stock of Castings is kept at the Works.
THEY MAY ALSO BE HAD OF ANY RESPECTABLE IRONMONGER.



No. 2. DOOR HEADS FOR OPENINGS.
34 in. and 36 in.

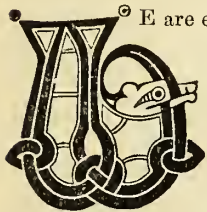
No. 3. WINDOW HEADS FOR BRICKWORK OPENINGS.
38 in., 39 in., 40 in., and 41 in.

FULL PARTICULARS on Application to the MANUFACTURERS,
NEWTON, CHAMBERS, & CO.,
THORNCLIFFE IRON WORKS
NEAR SHEFFIELD.

The Irish Builder.

VOL. XIII.—No. 266.

St. Finn Barr's Cathedral, Cork.



Are enabled to present with the present number a lithographic view* of the south-east of this building, which has been recently consecrated, and is now being used for divine

service, although the workmen are still engaged on it, and it will most probably be some years before it will be completely finished; but we trust that the citizens of Cork—who deserve well, not only the praise, but the thanks, of the country—will not rest satisfied with what has already been done, but will further exert themselves to complete this noble structure and to improve the locality surrounding it, which at present is not quite the sweetest spot in “the Beautiful City.” However, the Cathedral is erected on the site of the old church, which possessed historical associations that were quite sufficient to overrule any objections which might be made as to its immediate surroundings; besides, the site is elevated, and otherwise admirable, and it only requires a little energy on the part of the inhabitants and their representatives in the Corporation to make it all that could be desired.

The new Cathedral is cruciform on plan, consisting of nave, aisles, and transepts of comparatively slight projection, with tower and spire at the intersection; a splendid circular apse to the east, with ambulatory concentric with same, and two towers at the west end of aisles. The length of nave is 160 ft., and the width, including aisles, 52 ft. The style adopted by the architect—William Burges, Esq., of London—is the Early French, but freed from all extravagancies;—in fact the treatment is the simplest imaginable, and the effect produced by the admirable proportion of the several parts, and the plain, bold roll molding chamfer repeated throughout, is excellent. As an architectural monument, nothing could possibly be better; the least experienced in such matters comes away after an inspection with the most pleasurable feelings, and the art critic does not find much with which he can reasonably find fault; indeed the only thing that occurred to us in looking at the exterior of the building was, that it had not sufficient length, and we fear that this defect will be apparently increased when the towers are erected; but on entering the building this feeling is entirely removed, the proportions are so very good and height so vast that the length really appears more than it is. We fancy also that the *detail* is a little too heavy for the extent of the church, but in this also allowance should be made for the change which the execution of the “carving” will produce.

The internal fittings appear to be all of a temporary kind, but even in their plain simplicity they are strikingly in character with the surroundings.

* From an excellent photograph recently taken by Messrs. Lawrence, of Upper Sackville-street, who, we understand have also executed a series, to the order of the architect, in their usual good style.

Such of the sculpture as has already been done is remarkably effective, particularly that in the tympanum of the doorway to north transept, representing the “Measuring of the new Jerusalem,” as described in the Revelations: this is the gift of the Messrs. Cockburn, the contractors, and the subject has been most happily chosen, and reflects the highest credit on the sculptor, Mr. C. W. Harrison, of Great Brunswick-street, Dublin. The church is also indebted to the architect for a very handsome and appropriate gift: this is a figure—the archangel sounding the last trumpet; it is above life size, formed of copper and gilt, and placed on a foliated pedestal on the apex of the chancel roof.

As there are no funds to complete the three towers, they have been temporarily roofed over, the walls sustaining which and the arrangement of these roofs seem as if made purposely as *ugly* as possible, no doubt with the view of inducing some wealthy patron and the public to contribute towards their speedy removal and the substitution of the structures necessary for the completion of the design. When this is done, Cork City will possess a church which, aesthetically speaking, will be unsurpassed in Ireland; and it is only to be regretted that a building which has been designed with such unusual artistic merit, and constructed with such skill and solidity of the imperishable local limestone, should be so deficient in the most essential requirement—that of affording accommodation to a congregation; unfortunately it is found that all those (with the exception of about a dozen) who may be seated in the aisles are completely shut out from a view of the chancel and choir, and from all participation in the services of the church; and we should certainly say that the favoured few who could be accommodated with seats in the nave would not exceed three hundred. This would appear to us to be absurdly inadequate for the Cathedral of the important Diocese of Cork.

[The organ, a very fine instrument, is from the manufactory of Messrs. Telford, St. Stephen's-green, in this city.

We have learned, with regret, that an order for a very expensive organ to be placed in the Catholic Cathedral, Cork, has been entrusted to a French firm. We must question the propriety of such doings; the pounds and pence collected from the people should, when possible, be spent in this country.—ED. I. B.]

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THE ordinary general meeting of the Institute will be on Thursday evening next, when Mr. J. M.D. Bermingham, Associate, will read a paper on “The President's Address and Building Surveyors.”

THE ROYAL IRISH ACADEMY.

THIS Academy met on Monday evening at their house, 19 Dawson-street.

Rev. Professor JELLETT in the chair.

The following were elected members of the Academy:—Very Rev. Ulick J. Bourke, Tuam; G. W. Maunsell, Esq.; J. Symons, Esq., Hull; and R. H. Traquair, Esq., M.D.

Mr. C. Tichborne, F.C.S., read two papers—one on “The Formation of Acetic Acid by the destructive Distillation of Resin”; the other on “The Formation of Ozone by Resin Oils.”

Mr. G. J. Stoney, F.R.S., read a paper on “The Cause of Interrupted Spectra of Gases.”

Mr. H. Stokes, Co. Surveyor of Kerry, contributed a paper on “Existing National Monuments in the County of Kerry.” This paper had been forwarded in reply to a circular sent out by the Academy asking for

information respecting monuments, ruins, &c., existing in this country, with a view of having them preserved from destruction.

The secretary announced the receipt of numerous replies to the memorial adopted by the Academy in November last, with reference to the preservation of the Art-treasures in Paris. In a letter from the French consul in Dublin, intelligence has been conveyed from M. de Chambrody “that measures have been taken by the Government of National Defence to preserve, as far as possible, the literary, artistic, and scientific collections against all eventualities.”

The papers were referred to Council for publication, and the Academy adjourned until the 23rd inst.

THE ROYAL DUBLIN SOCIETY.

THE Third Evening Scientific Meeting will be held on Monday, at eight o'clock. The following are the papers announced for reading on the occasion:—“On the Seasons of the Great Year,” by Hercules Ellis. “A new Method of Extending Existing Bridges and Reducing Steep Gradients,” by Charles Geoghegan, F.R.I.A.I. “Chemical Notes from the Laboratory of the Royal Dublin Society.” For exhibition—The Absorption Spectrum of Solution of Sulphate of Didymium

TRADES UNIONS.

THE subject for debate at the meeting of the College Historical Society, on Wednesday evening, was—“That Trades Unions are detrimental to the best interests of the people.” The Chair was occupied by the Rev. Robert Walsh, M.A., ex-Auditor. From the scant attendance of members on the occasion, it must be presumed that the subject proposed was not looked on as a fitting one to be discussed by such a body. The debate lasted three hours, but during that time the speakers displayed a want of preparedness and knowledge of the subject in a practical point of view. The affirmative side had a majority on a division.

BOOKS RECEIVED.

Atchley's Civil Engineer's and Contractor's Estimate and Price Book for Home and Foreign Service. By W. Davis Haskoll, C.E. London: Lockwood and Co.

THIS latest work of Mr. Haskoll will, no doubt, be found a useful handy book in the office of the engineer and contractor. From the great experience of the author as a practical engineer both in England and abroad, we may be assured that the calculations he has presented can be taken as correct. In his very brief preface Mr. Haskoll states his reasons for preparing his work for the use of engineers and contractors. “Even in the hands, he says, “of those having some experience, it is hoped it may often serve to call attention to matters which in the haste of estimating might otherwise be forgotten. If there could be any doubt as to the accuracy of the above observations, it would clearly be removed by the simple fact of the immense differences which occur almost daily between tenders put in for the same works, even by men of well-known experience. This often occurs in a very simple manner, and merely by losing sight momentarily of some minor conditions which repeat themselves throughout a line of works, or perhaps some single circumstance bearing heavily on some important construction.” The book comprises tables and prices for every class of works the contractor can probably be required to tender for in his everyday business, including drainage, railways, and telegraphs. The prices of contractors' plant and tools are given at the end. We should not omit to mention that the work is illustrated with numerous wood engravings, and also plates showing the various descriptions of railway crossings recently adopted. With the names of Lockwood and Co. on its titlepage, it is almost unnecessary to observe that the book is well printed and bound.

THE LAND ACT AND ITS WORKING.

At the Land Sessions, held in the Court-house, Maynooth, on the 5th inst., before Mr. Lefroy, Q.C., Chairman of Quarter Sessions, a case came on for hearing in which Lord Harberton, as landlord, disputed the claim made by his tenant, Mr. Samuel Holt, of Castle Carbery, in County Kildare, to have a schedule of improvements, to the value of £8,131, alleged to have been made by him on his farm, filed as a record in the Landed Estates Court. Mr. Holt's farm is 456 statute acres in extent, which he holds under a lease dated 1st October, 1844, for 21 years, or one life now aged 30 years. The claim was made in respect of the building of a commodious and elegant dwelling-house and out-offices, and the fencing and draining and reclamation of the lands. It was made under the 6th section of the Land Act, which provides that any landlord or tenant who may be desirous of preserving evidence of any improvements made by himself or by his predecessors in title before or after the passing of the act, may file a schedule in the Landed Estates Court, specifying such improvements, and claiming the same as made by himself or his predecessors in title, and such schedule so filed shall be *prima facie* evidence that such improvements were made as therein mentioned, provided always that notice of such intention shall be given by the tenant to the landlord, or the landlord to the tenant, as the case may be, and if the person receiving such notice shall dispute the claim made, he shall be at liberty to apply to the Civil Bill Court to determine the matter.

Mr. E. Gibson, instructed by Mr. Thomas Tighe Meccredy, solicitor, appeared for Lord Harberton; and Mr. E. Fitzgibbon, instructed by Mr. H. C. Stephens, for Mr. Holt.

Mr. Fitzgibbon stated his client's case in support of the claim put forward by him. By the 4th section of the Act the right of the tenant was limited to 20 years before the claim for compensation, except for permanent buildings and reclamation of waste land; and, unlike the case of a yearly tenant, the Act created no presumption in favour of the leasehold tenant as to his having made the improvements himself, but threw upon him the onus of proving the facts. He would confine his evidence now to the nature and value of the improvements. The claim was not an exaggerated one in view of the exceptional importance of the holding, but considering the good terms which had heretofore subsisted between the parties—the farm had been in possession of the Holt family for at least 80 years—he did not think any occasion would ever arise for preferring a claim for compensation in respect of them. Mr. Holt only sought by the present proceeding to have his improvements registered under the Act. In October, 1844, the father of the present Lord Harberton made a lease to the father of Mr. Holt of the present holding, containing 456 acres, at a yearly rent of £318 16s., or 14s. an acre. He had previously held about 330 acres, at a rent of £258, but in the lease of 1844 an additional piece of land, named Malone's farm, was added. About the time of the granting of the lease Mr. Holt, the lessee, erected a substantial dwelling-house, with out-offices, at an expense of £4,000 or £5,000. After his death the holding came to his son Thomas, and Thomas having died, his brother, the present tenant, came into possession. He had drained the lands, reclaimed and cropped portions which had been a cut-away bog, removed old fences, squared the fields, and erected new fences to a large extent. The house was commenced before the granting of the lease, but it was not finished till afterwards. The value of the reclamation of 140 acres was estimated at £1,000; that of the drainage of 132 acres, at £10 an acre, or £1,320; the removal of 1,500 perches of fence, and erection of 900 perches of new fence instead, at £315; and the building of a handsome ornamental house for a herd, at £200. The figures to be gone into now would be the expenditure made by the tenant, and the time at which the expenditure was made.

The Chairman did not go with Mr. Fitzgibbon quite so far as to hold that he ought only to receive the figures as to how much the tenant expended, and take that for granted as the amount to be entered. He would require evidence of the value of the improvement at the time it was made, which would be the sum to be registered.

Mr. Gibson said he might save his learned friend some trouble by stating that he would contend that there was a third question to be considered in reference to the alleged improvements—namely, whether

in reality they were improvements at all. He would also contend that no claim could be made for anything antecedent to the lease of 1844, which formed a *terminus a quo*.

Mr. Fitzgibbon did not think that question was for the consideration of this court, but contended that the tenant had a right to claim behind the date of the lease if he chose, as the "holding," under the lease and before it, was the same. The definition of "holding" in the act plainly meant not the tenancy but the land.

The Chairman suggested that evidence should be adduced by Mr. Fitzgibbon, and Mr. Gibson could then raise objections to such portions of it as he contended ought not to be received.

Mr. Samuel Holt, the tenant, examined by Mr. Fitzgibbon—At the time of the lease of 1844 a previous lease was in existence, which was surrendered. Remembered once reading part of it, and it was for his father's life or 21 years. Deposed to the various alleged improvements executed by him and his father. The herd's house had cost him but £70 to erect; paid 2s. 6d. a perch to a man to make some of the fences. Could not tell the exact sum expended in the building of the house and offices by his father, and he had kept no account himself, nor found any of his father's, but he depended for the accuracy of the estimate in the draft schedule upon the calculations of Mr. George Parrott, C.E., whom he had recently employed to examine the place.

Cross-examined by Mr. Gibson—Was aware Lord Harberton had allowed money to his father for making bog mearings, and to his brother, Thomas Holt, for making boundary fences, and had expended a sum of money in arterial drainage of the lands also. All the persons that he could recollect as being engaged in the building of the house and offices were either dead or in America. Did not know whether or not the lease of 1844 was given at the low rent reserved in it, on the understanding that the buildings were to be erected.

Mr. Fitzgibbon said he would at once admit that the lease was given on the understanding and agreement that the work was to be done. The house was built on the faith of getting the lease, and the old lease was surrendered for the same reason.

Mr. Gibson said that was an important admission, and he would ask his Worship to take it down.

Cross examination continued—His father paid £150 for the interest in Malone's farm. He paid the money to Lord Harberton, and Lord Harberton gave it to Malone on Malone's surrender.

In reply to his Worship, the witness stated that he considered 14s. an acre a low rent for the holding—lower than had been paid by his father before that time; should say it was under the value.

At the close of Mr. Holt's examination, the Chairman suggested that perhaps this was a proper time for the argument as to the evidence, as much time would have been saved in case he should arrive at the conclusion on the arguments that some of the evidence should be thrown out.

Mr. Gibson submitted that no works executed prior to October, 1844, the date of the lease, could be taken into account. The 4th section of the Act declared that the compensation was to be given in respect of the tenant's "holding," and the 71st section defined "holding" to be something held "under the same contract of tenancy." The contract of tenancy here was the lease of 1844, and nothing else. Would it be argued that a claim could be made for a house built forty years ago, and two or three intervening leases surrendered before the existing lease was come to? The holding under the lease of 1844 was 450 acres, at a rent of £327. The holding before 1844 was 360 acres, at a rent of £256. It was impossible to say the latter was held "under the same contract of tenancy" as the former.

The Chairman said the difficulty he felt was as to whether he should be satisfied in this proceeding of anything except that improvements were made, and by whom. Before the tenant could get one farthing of the £8,000 claimed, the landlord's case should be considered under section 4, which saved him from liability in several instances specified.

Mr. Gibson contended that the limitation of claims for improvements made within 20 years, save in the case of building and reclamation, showed that, unless the chairman ruled in this proceeding that were improvements in respect of which the tenant could claim, time might be wasted in registering a host of things for which no claim could ever be made. Could it be argued that, though it was as clear as light no claim could ever be made for certain improvements, still they were to be registered? Was the court with one hand to record a matter for the other hand subsequently to erase?

The Chairman said, no doubt that was a strong point, but the 6th section said that evidence of improvements "made by the tenant or his predecessor in title" could be registered. It did seem strange that improvements should have to be registered in respect of which no possible claim could be made, as,

for instance, for lapse of time. But what was to be done with the statute?

Mr. Gibson contended that the reasonable interpretation of the statute was that only such improvements as compensation could be claimed for should be registered. These improvements were defined by the Act. Suppose it appeared that the landlord forbade the improvement, or that it was made in contravention of a clause requiring assent, or that it was made for valuable consideration given at the time by the landlord—was it, nevertheless, to be recorded in the schedule in the Landed Estates Court against the landlord, to be used years afterwards for the purpose of saddling him with extravagant or unfounded claims? To do this was a gross injustice. Here it was manifest that the lease of 1844 was the starting point; therefore the house built before that date was out of the lease. He protested, therefore, against these matters being registered as improvements against the landlord. There was no magic of law worked by the Act to set aside common sense.

Mr. Fitzgibbon contended that his original proposition was correct. All his worship could do in this proceeding was to register improvements within the definition of the 71st section, and to state by whom they were made. The proceeding was analogous to a bill in Chancery to perpetuate testimony. There was not a word in the section about registering improvements for which compensation was to be given or claimed. When compensation came to be claimed, if ever it should, it would be open to the landlord, under the 14th section, to show that he was exempt under any of the exceptions therein stated. But this was not the time nor the court for going into that question. The 6th section declared that the schedule of improvements registered was only *prima facie* evidence of such improvements, and that evidence could, of course, be rebutted by the landlord when compensation was demanded. It was impossible to get over the definition of improvement; that was, whatever added to the letting value of the land. That was the only matter to be regarded. The improvements so defined were to be registered, whether made by the tenant or his predecessors in title. His friend, Mr. Gibson, had said the Land Act had worked no magic of law. Well, it had unquestionably worked this magic, that it gave to the tenant what had before belonged to the landlord, and if the act had not passed, Mr. Holt could never have claimed for a house that cost his father £3,000.

The Chairman, after some further argument, said that, as the witnesses were in attendance, he would receive all the evidence offered, *de bene esse*.

Mr. George Parrott, C.E. and building surveyor, examined by Mr. Fitzgibbon—Had spent three days in examining the house and farm of Mr. Holt. The buildings were constructed in the best manner and of the best materials, with much handsome ornamental work. The rubble-work he estimated at 12s. per cubic yard, and the brickwork at 25s. The house Mr. Holt said he had built for £70 could not have been built for less than £200, so that in his evidence he had made a mistake against himself. The actual quantity of land was 115 acres reclaimed and drained, with 58 drained only. Estimated the value of the drainage of the part thoroughly drained at from £7 to £10 an acre. Had not himself opened any of the drains to examine them, except in two places; they were all pointed out to him by Mr. Holt. Estimated the fencing at from 6s. to 7s. a perch.

Cross-examined by Mr. Gibson—Went to examine the place to put the highest value on everything that could be called an improvement. His estimates were at present rates, but was aware that since 1843 labour had risen in price nearly 100 per cent.

To the Chairman—Estimated the 260 feet of ceiling cornices at £130, being at 10s. per foot run.

Mr. Thomas Connolly, builder (of the firm of Connolly and Son), Dublin, stated that he had examined the house, and thought it could be built for between £2,000 and £3,000.

Several farmers gave general evidence as to the improved condition of the land since the year 1844.

This closed the tenant's case.

Mr. F. F. Hamilton examined on the part of Lord Harberton—His father had been agent of the estate, and his brother was agent at present. Remembered, in company with his father in 1842, inspecting the house on Mr. Holt's farm, then in progress of erection. It was nearly finished. His father was so pleased with it that he procured for Mr. Holt's father the lease of 1844 from Lord Harberton. Had known the lands since he went to reside in the neighbourhood in 1842; saw nothing like thorough drainage on them. Some portions were well drained, and some of the fences were in good condition. The land was worth nearly double the rent paid for it. The only reclamation effected was the levelling of cut-away bog and the cropping of it. The house was too expensively built to be suitable to the farm. It was a very comfortable house, and he estimated its cost, together with the offices, at about £1,800.

Mr. G. Wilkinson, C.E., examined by Mr. Gibson—

During the past forty years had carried out building works all over Ireland for private gentlemen, for Poor-Law Union, and for the Board of Works. Had read over the draft schedule put forward on behalf of claimant, but it was impossible to follow it, for it purported to give measurements of the building which in several instances it would be impossible to make without removing the plaster off the walls to ascertain whether there was brickwork underneath, and how thick it was. So far as prices were concerned, he never saw anything more extravagant in his life. Considered 8s. a cubic yard a fair and liberal price for the rubble work, and he regarded the charge of 10s. a foot for the cornices as monstrous. Estimated the dwelling-house and offices at £1,950 altogether. Did not include the field gates in that estimate. Estimated the value of the house at the rate of 6d. per cubic foot of its entire bulk as it stood. A rate of 4d. per foot in buildings of that class gave almost invariably a very close approximation to their value, but he allowed something more for this house.

Mr. C. P. Brassington, C.E., examined—The present annual value of the farm was £524 13s. 9d. Had not examined the house, but from the evidence given respecting it, he considered it suitable to the farm. Considered 3s. a perch would be a fair price at the present day for the fencing. The land was in want of thorough drainage at the present moment. The reclamation effected consisted in the conversion of cut-away bog into tillage, which rendered it worth 10s. an acre. Although unproductive before this, it was worth, for letting purposes, 6s. an acre. That rent would be given for it with the object of converting it into tillage, so that in reality the improvement by reclamation in this way would only amount to 4s. per acre. That kind of reclamation might have been going on for centuries.

Mr. Hamilton was re-called, and stated that to the best of his opinion only about six acres had been thus reclaimed since the date of the lease.

This closed the evidence, and after some discussion as to the order to be made, the Chairman stated that, in accordance with the power given to him under Land Act rules, he would formally adjourn the session to the 10th of April, the next quarter sessions day at Naas, when he would pronounce his decision as to the frame of the schedule.

GLASTONBURY ABBEY, PAST AND PRESENT.

(Continued from page 4.)

RETRACING our steps once more to the nave, we turn to take one lingering glance at the scene: and here the full beauty and magnificence of the edifice bursts upon the view, the eye wanders through a perfect stony forest, whose stately trees, taken at some moment when their tops, bending towards each other and interlacing themselves, had been petrified into the natural beauty of the Gothic arch; here and there were secluded spots where the prismatic light from painted windows danced about the pillars like straggling sunbeams through the thick foliage of a forest glade. The clusters of pillars resembled the gnarled bark of old forest trees, and the grouped ornaments of their capitals were the points where the trunk itself spread off into limbs and branches; there were groves and labyrinths running far away into the interior of this sculptured wood, and towering high in the centre were those four kings of the forest, whose tops met far up in the heavens—the true heart of the scene from which everything diverged, and with which everything was in keeping. Then, as the spectator stands, lost in the grandeur of the spectacle, gazing in wrapt wonder at the sky-painted ceiling, or at some fantastic gnarled head grinning at him from a shady nook, the passing whim of some mediæval brain—a faint sigh, as of a distant wind, steals along those stony glades, gradually increasing in volume, until presently the full rich tones of the choir burst forth, the organ peals out its melodious thunder, and every arch and every pillar vibrates with undulations of harmonious sound, just as in the storm-shaken forest every mighty denizen bends his massive branches to the fierce tempest wind, and intones his deep response to the wild music of the storm. Before the power of that music tempest everything bowed, and as the strains of some Gregorian chant or the dirge-like melody of some penitential psalm filled the whole building with its pathos, every figure seemed to be invested

with life, the mysterious harmony between the building and its uses was manifested, the painted figures on the windows appeared to join in the strain, a celestial chorus of apostles, martyrs, and saints; the statues in their niches threw back the melody; the figures reclining on the tombs seemed to raise their clasped hands in silent response to its power, as though moved in their stony slumber by a dream of solemn sounds; the grotesque figures on the pillars and in nooks and corners chaunted the dissonant chords, which brought out more boldly the general harmony; every arch, with its entwined branches and sculptured foliage, shook with the stormy melody: all was instinct with sympathetic life until the fury of the tempest dying away in fitful gusts, the last breeze was wafted, the painted forms became dumb, the statues and images grew rigid, the foliage was still, all the sympathetic vitality faded away, and the sacred grove fell into its silent magnificence.

Attached to the great church were two offices—the sacristy and church treasury. In the former were kept the sacred vestments, chalices, &c., in use daily; and in the latter were kept all the valuables, such as sacred relics, jewels, and plate not in use, with mitres, crosiers, crosses, and pectorals; there was also a confessional for those who wished to use it before going to the altar. The care of these two offices was committed to a monk elected by the abbot, who was called the sacrist. Coming out of the church we arrive at the cloisters, a square place, surrounded by a corridor of pillars, and in the centre of the enclosure was a flower garden—this was the place where the monks were accustomed to assemble at certain hours to walk up and down. In one of the alleys of the cloister stood the chapter-house, which, as it was the scene of the most important events in their monotonous lives, deserves a description. In this spot the abbots and officers of the monastery were elected, all the business of the house as a body was discussed, faults were openly confessed, openly reprovèd, and in some cases corporal punishment was awarded in the presence of the abbot and whole convent upon some incorrigible offender, so that, besides being an assembling room, it was a court of complaint and correction. One brother could accuse another openly, when the matter was gone into, and justice done. In all conventual institutions it was a weekly custom, and in some a daily one, to assemble in the chapter-house after one of the morning services (generally after primes), when a sentence from the rule was read, a psalm sung, and business attended to. It was also an envied burying-place; and the reader, as he stood at his desk in the chapter-house of Glastonbury Abbey, stood over the body of Abbot Chinnock, who himself perfected its building, which was commenced in 1303 by Abbot Fromont. In the interior, which was lit up by a magnificent stained glass window, there were three rows of stone benches one above another. On the floor there was a reading-desk and bench apart; in a platform raised above the other seats was the abbot's renowned elbow-chair, which extraordinary piece of monastic workmanship excited so much curiosity at the Great Exhibition of 1851. In the middle of the hall was a platform called the Judgment, being the spot where corporal punishment when necessary was inflicted; and towering above all was a crucifix, to remind the brethren of the sufferings of Christ. In another alley of the cloisters stood the fraternity, or apartment for the novices, which had its own refectory, common room, lavatory and dormitory, and was governed by one of the priors. Ascending the staircase, we come to a gallery in which are the library, the wardrobe, the common house, and the common treasury. The library was the first in England, filled with choice and valuable books, which had been given to the monastery from time to time in its history by kings, scholars, and devotees of all classes; many also were transcribed by the monks. During the twelfth century, although even then of great renown in the

world, it was considerably augmented by Henricus Blessensis, or Henry of Blois (nephew of Henry I. and brother of Stephen), who was abbot. This royal scholar had more books transcribed during his abbacy than any of his predecessors. A list is still extant—“De Libris quos Henricus fecit transcribere,” in which are to be found such works as Pliny “De Naturali Historia,” a book in great favour at that time; “Originem super Epistolas Pauli ad Romanos,” “Vitas Cæsarum,” “Augustinum de Trinitate,” &c.

Here, too, as in every monastic library in the kingdom, was that old favourite of conventional life, and still favourite with many a lonely student, “Boethius de Consolatione Philosophiæ,” written like Bunyan's “Pilgrim's Progress;” Grotius' “Commentary,” Cervantes' “Don Quixote,” Sir Walter Raleigh's “History of the World,” Voltaire's “Henriade,” and many a great work from the grim solitude of a prison cell, cherished, too, as the link which connected the modern Latinists with those of the classic age. Housed up in that lonely corner of the island, the Glastonbury library was the storehouse of all the learning of the times; and as devotees bent their steps from all climes towards the Glastonbury relics and the Glastonbury shrine, so did the devotees of genius lovingly wander to the Glastonbury library. Leland, the old gossiping antiquarian, has testified to its glory, and given us an amusing account of the reverential awe with which he visited it not long before the fatal dissolution of the monastery.

But attached to the library was a department common to all the Benedictine monasteries, where, during long centuries of ignorance, the materials of modern education were preserved and perpetuated; this office was called the scriptorium, or domus antiquarium. Here were assembled for daily labour a class of monks selected for their superior scholarship and writing ability; they were divided into two classes, the antiquarii and the librarii: the former were occupied in making copies of valuable old books, and the latter were engaged in transcribing new ones, and works of an inferior order. The books they copied were the scriptures, always in process of copying; missals, books for the service of the church, works on theology, and any of the classics that fell into their hands. St. David, the patron saint of Wales, is said to have devoted much time to this work, and at the period of his death had begun to transcribe the Gospel of St. John in letters of gold with his own hand. The instruments used in the work of the scriptorium were pens, chalk, pumice-stone for rubbing the parchment smooth; penknives, and knives for making erasures, an awl to make dots, a ruler and inkstand. The greatest care was taken by the transcriber, the writing was always beautifully clear, omissions were most scrupulously noted in the margins, and all interlineations were mentioned and acknowledged. In an old manuscript belonging to the Carmelites the scribe adds, “I have signed it with the sign following, and made a certain interlineation, which says, ‘*redis*,’ and another, which says ‘*ordinis*,’ and another, which says ‘*ordini*,’ and another which says ‘*circa*.’” So great was the care they took to preserve the text accurately, and free from interpolations. In these secluded studies sprung up that art, the most charming which the middle ages have handed down to us, the art of illumination, so vainly imitated by the artists of the present day, not from want of genius, but from want of a something almost indescribable in the conception and execution, a tone and preservation of colour, and especially of the gilding, which was essentially peculiar to the old monks, who must have possessed some secret both of combination and fixing of colours, which has been lost with them. This elaborate illumination was devoted to religious books, psalms, missals, and prayer-books; in other works the first letters of chapters were beautifully illuminated, and other leading letters in a lesser degree. The scribe generally left spaces for these, as that was the duty of another; in

the spaces were what were called "leading letters," written small to guide the illuminator; these guide-letters may still be detected in some books. So great was the love of this art, that when printing displaced the labours of the scribe, it was customary for a long time to have the leading letters left blank for illumination. Such were the peculiar labours of the scriptorium, and to encourage those who dedicated their time to it, a special benediction was attached to the office, and posterity, when satirizing the monastic life, with its many superstitions and possible vices, would do well to remember that the elegance of the satire may be traced back again to these labours, which are the materials for the education and refinement of modern thought; we got our Bible from them, we got our classics from them, and had not such ruthless vandalism been exercised by those over zealous men who effected their dispersion, it is more than probable that the learned world would not have had to lament over the lost Decades of Livy. It is the peculiarity of ignorance to be barbarous. There is very little difference between the feeling which prompted a Caliph Omar to burn the Alexandrian Library, or a Totila to destroy the achievements of Roman art; and the feeling had only degenerated into the barbarity, without the bravery, when it revived again in the person of our arch-iconoclast, Cromwell, of church devastating memory, who, however great his love of piety may have been, must have had a thorough hatred of architecture. The care of the library and the scriptorium was intrusted to the librarian. The next department in the gallery was the lavatory, fitted up with all the appliances for washing; and adjoining this room was one arranged for shaving, a duty to which the monks paid strict attention, more especially to preserve the tonsure. The next room was the wardrobe, where their articles of clothing and bedding were stored, and in an inner chamber was the tailory, where a number of lay brethren, with a vocation for that useful craft, were continually at work, making and repairing the clothes of the community. These two rooms and the lavatory were in charge of the camerarius, or chamberlain. The last abbot who sat in the chair of Glasstonbury was, as we shall see, elevated from this humble position to that princely dignity. The common room was the next office, and this was fitted up with benches and tables for the general use of the monks; a fire was also kept burning in the winter, the only one allowed for general purposes. The last chamber in the corridor was the common treasury, a strong receptacle for ready money belonging to the monastery, charters, registers, books, and accounts of the abbey, all stored up in iron chests. In addition to being the strong room of the abbey it had another important use. In those uncertain times it was the custom for both nobles and gentry to send their deeds, family papers, and sometimes their plate and money, to the nearest monastery, where, by permission of the abbot, they were entrusted to the care of the treasurer for greater security; in the wildest hour, when the castle was given up to fire and sword, the abbey was always held in reverence; for, independently of its sacred character, it was endeared to the people by the free-handed charity of its almonry and refectory kitchen.

(To be continued.)

"THE LABOURER IS WORTHY OF HIS HIRE."

It is recorded that the Irish who fought for King James at the memorable contest of the Boyne, when they found they had lost the day, cried out, "Exchange commanders and we'll fight the battle over again." The working men of Ireland, who are always upon the losing side in the great battle of life, and who are denounced for not being more successful, might well cry out at this present time to those who rule, to exchange 50 per cent. of those who have the command of our industries for men who would act honorably by them,

and they would renew the contest for bread, and be satisfied that they would not fail to win. The narrow-minded rulers who support the present state of things in Ireland expect to find peace and contentment where disaffection can only be looked for as the natural result. They expect the unlettered peasant or half-taught mechanic, whom it would take days to walk round the possessions of the aristocratic land-owner, to be more virtuous than the educated lord of the soil. They would have him view everything belonging to this great man—his castle, his lands, his granaries, his well-stocked larder, his wine and beer cellars, his horses and carriages, sports and pastimes—everything in fact that wealth can procure for his ease and comfort; they would have him view all, and then turn his eyes to his own miserable position, and be satisfied with his lot.

The Englishman—with whose country Ireland has been to her grief so long connected,—travelling upon the Continent of Europe or America, might boast that he belonged to a brave nation, because England won battles in days gone by; but could he assert without fear of contradiction that the working men of his country were superior, or even equal, in intelligence and morality to those of other nations? We are sure he could not. In our opinion the latter boast would be preferable to the former, for almost any animal can be taught to do one thing; and if that one accomplishment be knowing how to fight, it ought to be nothing to brag about, as it is a failing natural in man. But we are told that an Education Bill has just been passed in England, from which cheering results are expected. We would be inclined to say that such would speedily follow if the hours of labour were reduced 20 per cent. on the same day that this Bill became law. Without this boon, the dissatisfaction and discontent of the working classes will be increased tenfold. Macaulay, in reviewing the early opinions of the present Prime Minister of England on Church and State, says, in advocating the Catholic's cause in those days:—"Educate him, if you wish him to feel his degradation. Educate him, if you wish to stimulate his craving for what he never must enjoy. Educate him, if you would imitate the barbarity of that Celtic tyrant who fed his prisoners on salted food till they called eagerly for drink, and then let down an empty cup into the dungeon, and let them die of thirst." To educate the working classes without granting them time to enjoy the tastes which follow in its train will be like feeding them on salted food, and then depriving them of drink to quench their thirst. The statesman who rests his fame upon the idea of educating the working classes ought to be reminded that it is not a new one, since one of the aims of all trades' unions is to secure the means to educate their children.

When we look upon the card which certifies our claim to be recognised as a member of the Regular Carpenters of Dublin, we find that this body has been 400 years in existence; so that, 400 years ago, the carpenters of Dublin decided that it was right and proper to educate their children. Our modern legislators proclaim by the Act just passed that the idea of the Dublin carpenters of 400 years ago was a sound one. Is not this complimentary to the Dublin Carpenters' Society as well as to all other trade bodies? One of the conditions on which a member is admitted into the Dublin society of carpenters is, that he has served seven years to his trade. Was not this aiming at technical education, which English writers proclaim to-day is a great want amongst the majority of artisans? The candidate who sought admission into this society was also required to promise that he would not work with any man who was not a member of this trade body. In adhering to this resolution, the carpenters of Dublin aimed at preserving a body of men capable of building a house that would not fall down about the ears of the occupier. If every man who could handle a saw or an axe, and who was in the habit of doing so for twelve months, was recognised as a carpenter, what kind of

workmen would we have at the present day? The carpenters of Dublin of 400 years ago have been the means of preserving a body of men who, if not technically educated in theory, are so to a fair extent in practice, and who are in this respect second to no other body in the empire. The advocates of technical education, then, may be told that, were it not for the establishment of trade societies, the grand conceptions of architects might remain for ever on paper, and the architects themselves might go on "hiding their light under a bushel," or "wasting their sweetness on the desert air."

In the face of the wisdom of those who say that, to preserve workmen skilled in their calling, it was necessary to establish rules to enable them to do so, and which rules were upheld by means of trade bodies banded together in fellowship and good will; it has been asserted time after time that such combinations were formed solely for the purpose of intimidation and outrage. These charges have been uttered by the creatures of the grasping employer, and backed up through the Press and otherwise by a misled public. The reasons put forward by the grasping contractor for opposing trades' unions were ostensibly a tender concern for the interests of the public, while his real object was to add to his profits what he could clip off the workman's wages. There are employers in this city who employ no workmen but those whose poverty compels them to labour for from 4s. to 6s. weekly under the standard wages. We ask a discriminating public whether such employers go to the trouble, in estimating for a job, to calculate at such rates of wages, or whether it is not more likely that they look for a profit at the standard rate, and make what they can after by employing those who, having no protection, must work for what they offer. In our experience we have met with many such men, the acts of one of whom, we consider, will be enough to mention in order to shew the grasping propensities of these people, and how the public are misled by their misrepresentations. The doings of the person to whom we allude would amply repay the trouble of any dramatic author who could place them in order before the public. We have styled this person in our own mind a contracting autocrat, who, although he professed certain principles in conjunction with a strict religious sect, his acts were, generally speaking, very unchristian. In the first place, the most skilled workman would not get employment from him unless he was content to begin at 6s. under the standard rate of wages. If the man proved himself to be a good workman, attentive, and sober, it rested with Mr. Samuel Pinchpay to reward him with 2s. of an advance after three months' trial. Thus for three months this Christian contractor pocketed 6s. per week of the wages which was the man's right according to the market rate. This system of advancing the man's wages was repeated at the end of every three months, if he still continued a good boy, until the standard rate was obtained. If this was not defrauding the labourer of his wages, we do not know what would be. True, the man was not compelled to work for him, but perhaps he was in the same position as the person who borrowed money from the London Shylock that was punished last year for charging what the law considered exorbitant interest. If, in the mean time, the man brought upon himself the anger of Mr. Pinchpay, which was often very easy to rouse, he was instantly dismissed, and his name and what he was discharged for were entered in what the men called "the black book of record." This was written in red ink, as if to remind this Christian employer of blood, and kept for ready reference if the delinquent should ever again apply for a job at the office of Mr. Pinchpay. Many an anecdote of Mr. Pinchpay and his book has been told amongst the Dublin workmen in our own time, and we believe we are not mistaken in saying that it is intended to remain as an heirloom in the family. We are not sure that Mr. Pinchpay is on the land of the living or not; but if he is, and that these lines meet his eye, we hope he will burn his

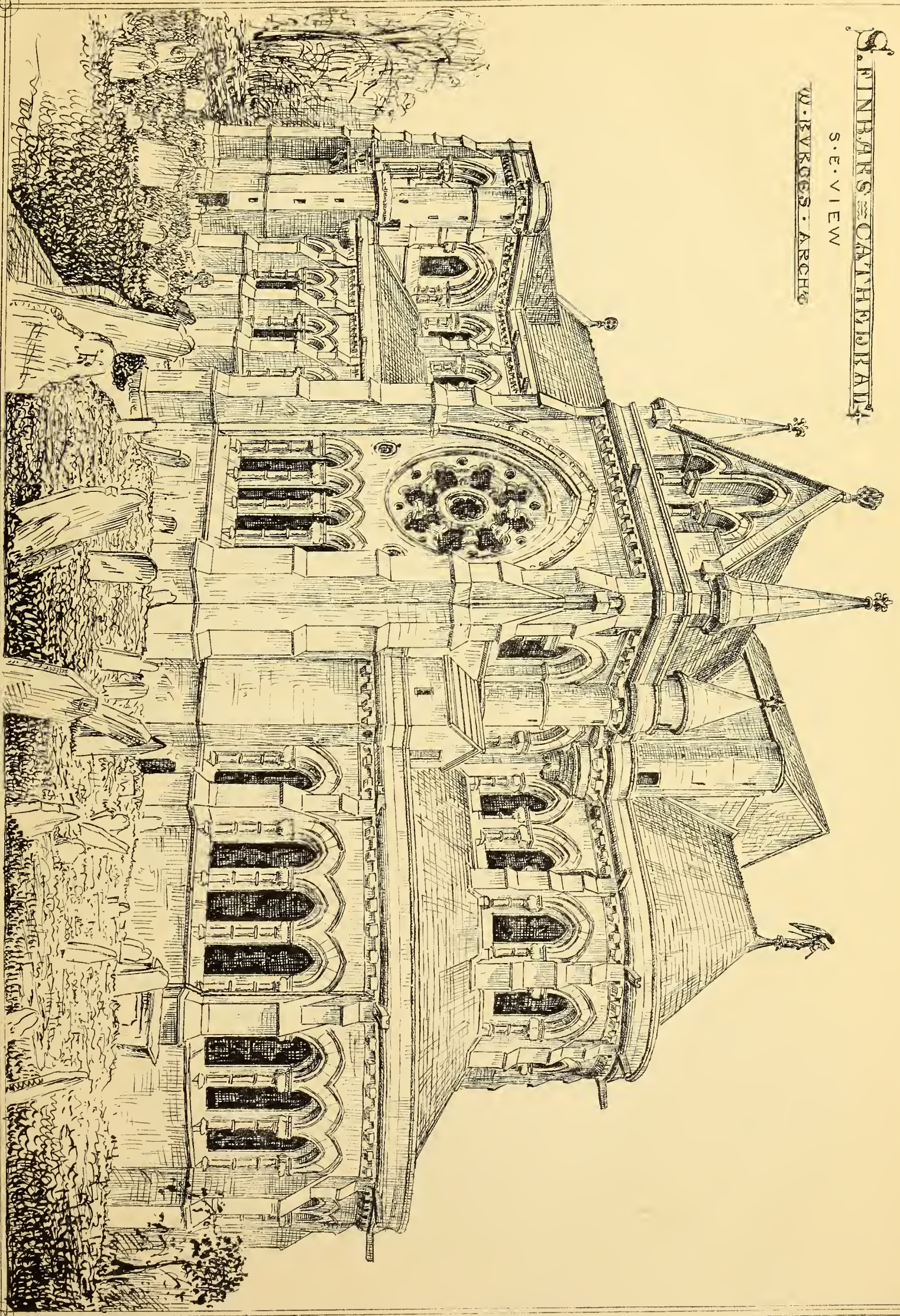
The Irish Builder

Vol 254 Jan 15 1871

S. FINBAR'S CATHEDRAL

S.E. VIEW

W. BARRETT ARCHT



THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

book and repent of his ways, hoping in his heart of hearts that the recording angel of an all-merciful God might erase from the book of life his own misdeeds. We shall conclude this article by relating one of the anecdotes which we have heard, in order to remind him that his acts are remembered, and that sooner or later the end will come. The story in question has been told by a carpenter, whom Mr. Pinchpay sent to hang a pair of gates on a very cold day. Being used to inside work, this carpenter did not relish being outside, and consequently tried his utmost to get his job finished. He did so by exerting himself beyond his ordinary speed at a few moments before six o'clock in the evening, which was stopping time, and in the joy of his heart began knocking with his hammer upon the gate by way of demonstration. Mr. Pinchpay happening to come up at the time, and catching him in the act, demanded what it meant. "I was giving the knock-off blow, sir." "It's not stopping time yet," said Mr. Pinchpay, pulling out his watch. "But as I have finished my job, sir," replied the man, "I thought I was at liberty to leave off; besides, I worked very hard to get done, and it is some distance from here to the shop." "Thou couldst be sharpening thy tools until the time was up, sir, and for neglecting to do this thou mayst consider thyself discharged." Eighteen years after, according to the story, the same man applied for a job at the office of Mr. Pinchpay. "Didst thou ever work for me before?" demanded this personage. "Yes, sir." "What is thy name?" The man having replied, Mr. Pinchpay, turning over the leaves of the dreaded book, continued—"How long ago is it since thou worked for me before?" "Eighteen years, sir." "Ha," exclaimed Mr. Pinchpay, as he came upon the man's name, and suddenly stopping—"What wert thou discharged for?" Thinking the circumstance perhaps too slight to mention, or, it may be, forgetting all about it, the man replied that he could not recollect exactly. "Thou wert discharged, sir," said Mr. Samuel Pinchpay, in a measured tone of voice, "for drumming on a gate before six o'clock;" then passing sentence, he continued—"I have no job for thee." It is useless to dwell upon this subject further than to say that such men as Mr. Pinchpay—and their name is legion in Ireland—do more to stimulate her people to demonstrations of discontent than the wildest speeches of the most artful of dishonest demagogues.

JOHN DOONER.

SOME THINGS I DON'T WANT IN THE BUILDING TRADES.*

I DON'T want my house put in repair, or rather out of repair by a master who employs "Jacks of all Trades."

I don't want bricklayers' labourers, or hodmen, to turn builders; because they usually know about as much of an architect's plans and specifications as a cow of an eclipse.

I don't want fresh-water sand to be supplied to me from the neighbourhood of Ramsgate or Margate or other equally pleasant sea-side place.

I don't want my foreman to tell me too much at one time about the faults of the workmen under him, as I may forget asking him about himself.

I don't want a builder or carpenter to give a coat of paint to any joinery work he may be doing for me until I have examined first the material and workmanship.

I don't want any jobbing carpenter or joiner whom I may employ to bring a lump of putty in his tool-basket. I prefer leaving the use of putty to the painters.

I don't want jobbing plumbers to spend three days upon the roof soldering up a crack in the gutter, and when done, leaving fresher cracks behind them. The practice is something akin to "cut and come again."

I don't want scaffolding to be lashed

together with rotten ropes, and the whole stage to have an unmistakable incline to the street instead of a "lean-to" inwards.

I don't want boys put to learn any of the building trades until they have received a tolerable elementary and technical education.

I don't want builders in general to be putting in estimates with hundreds and even thousands of pounds difference in the one job. The public can only think, like me, that they are dishonestly inclined or that they do not know their business. This charitable view of the matter covers a multitude of sins.

I don't want a contractor to undertake a job at a price that he knows will not pay, and then throw the fault of his bankruptcy on "that blackguard building."

I don't want 1½ in. sashes of white deal to be put into a building, instead of 2½ in. of red deal, as contracted for.

I don't want any more hodmen to be carrying up the weight of themselves in their hod as well as their bricks; I would much prefer seeing the poor human machines tempering the mortar or wheeling the barrow, while the donkey engine, the hydraulic lift, or the old grey horse worked the pulley.

I don't want builders' carts to be screeching in the city like a locomotive whistle. A little grease might ease the wheel and the labour of the horse at the same time, and give me and others the opportunity of hearing what is spoken as well as seeing what is done.

I don't want house-doors to be made badly, hung badly, or composed of green and unseasoned timber.

I don't want locks, keys, door, window, and window-blind furniture and fastenings that are manufactured in Birmingham to "sell," to be used in any of my houses. I was "sold" once. A burnt child dreads the fire.

I don't want any of my workmen to "kick" a gentleman or lady, or even the architect, should he happen to come into a new building to see how it progresses. "Kicks" of any kind, whether in the shin, or for beer, are simply unbearable. All spirited workmen ought to be above the mean practice of a kick, or they deserve one.

I don't want common plasterers to imagine that they are modellers or workers of scagliola.

I don't want stone-masons or stone-cutters, or mural masons to ape the role of sculptors, or to think that the hideous effigies they cut on corbels and friezes have any relation to art.

I don't want houses built first and designed afterwards, or rather wedged into shape, and braced into form.

I don't want surveyors in general to dub themselves civil engineers, or civil engineers to think that they know as much about architecture as legitimate professionals whom they bark at but are unable to bite.

I don't want to be compelled to pay any workman a fair day's wages for a half-day's work.

I don't want an employer to act towards his workmen as if he thought their sinews and thews were of iron, instead of flesh and blood.

I don't want any kind of old rubbish of brick and stone to be bundled into walls and partitions, and then plastered over "hurry skurry." Trade infamy, like murder, "will out" sooner or later.

I don't want men to wear flesh and bone, and waste sweat and blood, in forms of labor to which machinery can be applied, and by which valuable human life and labor can be better and more profitably utilised.

I don't want to say much more at present about trade in general or trade in particular, for fear I may be accused of "spoiling trade," and "rattened" accordingly, both by master and man.

Lastly, I don't want to know whether I have offended any of the readers of the *Builder*. If the cap fits any of them, let them wear it, without my apology, as I object to the rude practice of first cutting a man's head, and then giving him a plaster.

ONE WHO KNOWS.

AIR-DRIED TIMBER.

DR. HARTIG, of Munich, has recently made experiments on various kinds of woods. He says trees generally contain, during the winter months, about an average of 50·7 per cent. of moisture; in March and April, about 46·9 per cent.; in May, June, and July, about 48 per cent.; while up to the end of November the quantity of moisture increases but little. Air-dried wood (timber) contains from 20 per cent. to 25 per cent. of water, and never less than 10 per cent. Wood, which, by being artificially dried, has been deprived of all moisture, is thereby entirely altered as regards its cohesive strength—it becomes brittle, and loses its elasticity and flexibility. In order to dry all kinds of timber by artificial means, so as to preserve the essential physical structure, and thereby the good properties of the wood, the drying should be effected slowly, and the temperature to which the timber is submitted should be moderate to begin with, and care should be taken not to eliminate the water. He also states that small pieces of wood, such as are intended for joiners and furniture-makers, may readily and efficiently be dried by being placed in dry sand, and then heated to 100 deg. The sand acts in the manner of an absorber of the moisture as well as a diffuser of the heat.

ROYAL ALBERT HALL.

ON Saturday an interesting trial as a further test of the acoustic qualities of the Royal Albert Hall was held. The band of the 1st Life Guards, under the direction of Mr. Waterson, attended at half-past two o'clock, and from that hour until past four various instrumental pieces were played. The selection was well made, affording an opportunity of hearing the effects of loud orchestral chords as well as the subdued tones of pianissimo passages, and two songs were also given by a lady vocalist, with accompaniments on a Kirkman pianoforte. The result was satisfactory; there seemed sufficient resonance to insure uninterrupted vitality to the waves of sound, and there was but very little re-percussion, and that confined almost to one point on either side of the vast oval of the interior of the building. The vocal tones were heard remarkably clearly, and the singer appeared to be able to deliver her voice with unexpected ease. One lesson may certainly, however, be learnt by this trial, and that is that a most perfect verbal enunciation will be necessary to all who essay to sing in the new building; in this instance it was impossible to catch a single word, so that although the sounds were most pleasantly audible, the fair vocalist might have been singing in any known or unknown tongue, to far as ability to distinguish was concerned. The trial was however scarcely conclusive; the scaffolding still remains in the centre, the glass inner dome is not yet complete, and the orchestra was by no means as full as would be likely to be employed at any concerts. Single sounds there can be no doubt of, but a large chorus of mixed voices, with corresponding magnitude of instrumental accompaniment, will probably produce results not as yet ascertained. One point, however, is quite clear, and that is that the trial of Saturday is thoroughly satisfactory as to the ability of the building to convey the sound, and that any difficulty that may on completion arise, can readily be met by drapery to the upper alcoves, and, if necessary, by opening spaces below and in the surface of the inner glass dome to lessen the effects of the inevitably very considerable disturbance of the atmospheric waves in the upper part of the building. A large number of visitors attended, who seemed to express a general opinion in favour of the satisfactory results of the trial.—*Building News*.

* From the *Builder*.

THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

The annual general meeting of this Association was held at Butler House, Kilkenny, on the 4th inst.

EUGENE SHINE, Esq., in the chair.

The report of the committee for the year 1870 was read by Mr. J. G. A. Prim (hon. sec.), as follows:—

"The Association entered on a new phase in its existence on the first day of the year which has just closed. Having been recognised by our gracious Queen to have acquired a national character, her Majesty was, towards the close of 1869, graciously pleased to constitute it a Royal Society, and to confer on it the privilege of electing Fellows. At the annual meeting of the ensuing year the friends of the Association looked forward with confident hope that its further progress would be secured, and a stability for the future given to its organization which it had previously lacked.

"These sanguine anticipations have not been fulfilled; and your committee can point to its roll of Fellows, the increase of its members, and the pages of its 'Journal' and annual volume, in proof of this assertion. In addition to the foundation Fellows constituted by the Queen's letter, the following noblemen and gentlemen have since been enrolled, their names being arranged in the order of the dates of their election:—

"Right Hon. Lord Castletown; Rev. G. R. P. Colles, LL.D.; W. B. Leonard, G.S.I.; General the Right Hon. Sir Thomas Larcom, K.C.B.; J. S. Sloane, C.E., M.R.I.A.; W. H. Lynn, F.R.I.B.A., A.R.H.A.; Rev. Thos. James, F.S.A.; G. Langtry; R. Malcomson; R. S. L. Dames, M.R.I.A.; Right Hon. the Earl of Antrim; A. G. Geoghegan; Rev. S. Malone, R.C.C.; R. L. Whitty; Rev. G. H. Reade; A. Fitzgibbon, C.E., M.R.I.A.; N. Carolan; F. A. Jackson; Right Hon. Lord Gort; Right Hon. General Dnne, M.R.I.A.; J. A. Porefoy Colles, M.D.; D. J. Rowan, C.E.; E. S. Robertson, B.C.S.; James B. Farrell, C.E.

"Your treasurer has, in consequence, been able to invest £50 in the funds, in the names of your trustees, to form the nucleus of a permanent reserve fund. The number of new Fellows and members elected during the year amounted to 75, and the entire roll on December 31st extended to 692 names, showing an increase of 10. 59 members were lost by death or resignation, and 6 have been removed from the list for non-payment of subscriptions.

"It must be apparent to the members that if they all claimed the privilege accorded to them by the Queen's letter, and in every case took out their Fellowship, that not only would a large increase be made in the Association's annual income, but that a reserve fund amounting to £1,134 would be at once created by the investment of the entrance fee of £2. That all should do so, is not, of course, to be expected; yet your committee feel assured that many zealous members will, during the year now entered on, be willing to further the interests and insure the stability of the Association by claiming participation in the honor accorded to them by the Queen.

"Your committee have the pleasure of laying before you the first part of Miss Stokes's truly national undertaking, "Christian Inscriptions in the Irish Language." They cannot do better than append here, in the accomplished editor's own words, the plan on which this noble work is intended to be carried on:—

"In arranging the proposed series of Christian inscriptions in the Irish language, an effort has been made to follow a certain plan, by which the various points of interest belonging to this collection may be most clearly indicated. Although it is intended that the work shall form a *Corpus Inscriptionum Hibernicarum*, wherever existing, yet it has appeared desirable that the collection of inscriptions at Clonmacnoise and its neighbourhood should form the first section. It consists of upwards of 170 examples, which, being more or less arranged in sequence, form a complete series ranging from the seventh down to the twelfth

century, shewing the gradual development and progress of sculpture and style of lettering in Ireland, and which may thus serve as a key to the approximate dates of such works in other parts of this country, as well as elsewhere in the British Islands. Many of the names on these stones have been identified, and this is rendered more or less certain by bringing three forms of evidence to bear on each example: first, the occurrence of the name in the annals; second, the study of the palæographical and philological forms and peculiarities observable in the inscriptions themselves; third, the amount of artistic power displayed, and the growth and development of certain designs at certain periods.

"The series of monumental slabs of the Clonmacnoise school thus arranged will, it is hoped, afford data on which to found, with a certain amount of accuracy, a theory as to the gradual progress and development of the art of design and forms of letters used at various periods, in accordance with which the inscriptions forming the remainder of this collection will be arranged. This, the second section of the work, will contain all the Christian inscriptions in the Irish language as yet discovered in Ireland and elsewhere, including all such as are found on reliquaries, croziers, &c.

"Inscriptions widely differing in date are often discovered in the graveyards and monastic sites founded in the sixth century, and restored and re-endowed at a later period. It is quite evident that no topographical classification of the drawings of the stones found in such localities could be attempted without sacrificing the chronological arrangement. The inscriptions forming these various groups will, therefore, be arranged according to their periods, irrespective of locality. This part of the work will, however, be preceded by a topographical index of the inscribed monuments found in each of the counties of Ireland, with a chronological list of the names which appear to have been identified.

"A short historical notice of the various ecclesiastical foundations in connexion with which such stones and relics are found, will also be given; and the plan pursued in dealing with these monuments individually is to give—

1. The drawing.
2. The translation.
3. Philological remarks.
4. Identification, where possible, of the person commemorated.
5. Place where found.
6. Remarks as to the character and period of the art shewn in the decoration of these monuments.

"The entire work will be concluded by an alphabetical list of all the proper names which occur in the inscriptions, and a general index."

"Your committee feel assured that very few of the members will be content to want this valuable addition to Irish historic literature.

"The present juncture of affairs in France rendering the danger imminent that the siege operations before Paris might result in a calamity which all ages would lament, viz., the destruction of the priceless collections illustrative of literature and art, ancient and modern, rendered it imperative on your committee (acting on the invitation of the Royal Irish Academy, to join that body in taking action in the matter) to address a memorial to Earl Granville, her Majesty's Principal Secretary of State for Foreign Affairs.

"Your committee must not forget to call attention to the valuable collection of antiquities connected with our Irish lake dwellings, or crannogs, deposited in our museum by the Earl of Enniskillen and Mr. W. F. Wakeman, which it is hoped will, in connection with the papers contributed by Mr. Wakeman to our 'Journal,' and aided by the graphic illustrations of his ready pencil, serve to illustrate this hitherto much-neglected department of Irish archaeology.

"It is hoped that the movement set on foot by the Association for the preservation of the ancient remains at Glendalough may be successful, and that when the spring opens operations may be commenced. Your committee also hope that the thorough repair of the round tower and ancient churches of Monasterboice will be secured through the influence of the Association before the year expires.

"Amongst numerous other benefactors to the Association, the name of Mr. A. Fitzgibbon must be recorded. When the members receive the result of his investigations and liberal pecuniary outlay, they will be

sensible that the delay of the 'Journal' for October, 1869, will be a lasting benefit to the Association, as it will contain a most valuable contribution to the history of Ireland. The causes which have hitherto kept back the number of the 'Journal' for October, 1867, being now removed, it also will shortly be issued to the members.

"Amongst members whose removal by death the Association has to regret, your committee feel constrained to place on record the names of the Hon. Robert O'Brien, and Mr. Charles Foot, barrister-at-law. Mr. Foot contributed a valuable paper to our Association, and was ever active in enlisting recruits from amongst the Bar of Ireland, many of whose names grace our list of members. The Hon. Robert O'Brien contributed a mass of most valuable notes to the portions of Dineley's *Tonn* relative to Limerick and Clare, and had promised his aid in anything that related to the History of Thomond, with which he was intimately acquainted."

On the motion of Dr. B. Delaney, seconded by Mr. Bracken, S.I., the report of the Committee was adopted, and the former officers and members of committee were re-elected for the ensuing year.

Mr. J. G. Robertson consented to act as auditor of the treasurer's accounts, as hitherto, but the other auditor, Mr. P. A. Aylward, having left Kilkenny, it became necessary to appoint some one in his place, and Dr. Fitzsimons was unanimously chosen; the accounts, when audited, to be brought up at the April meeting.

The following were elected as Members:—

Miss O'Rourke, Nicholas Ennis, G. Griffith, Arthur M'Mahon, Rev. Edward O'Brien, Thomas Scully, jun., M.D.; Thomas Watson, Robert Romney Kane, the Very Rev. Canon T. Murphy, P.P.; David Augustus Nagle, John Somerville, Robert H. Jones, Thomas Earley, Nicholas Ennis, W. H. S. Creed, Charles W. H. S. Richardson.

The following gentlemen were elected as Fellows:—

Captain T. Bigoc Williams, F.S.A.; John Somerville, Evelyn Philip Shirley.

The secretary laid before the meeting an early copy of the Association's "Journal" containing the proceedings of the last October meeting, which would be immediately issued to the members. He also called attention to a copy of the first part of Miss Stokes's "Christian Inscriptions in the Irish Language," now ready to be forwarded to those who had subscribed for "the Annual Volume for 1870."

PRESENTATIONS.

A number of books, chiefly the publications of kindred societies presented to the Association's library, were laid on the table. Particular interest was excited by some publications beautifully illustrated with photographs and engravings, viz.—"Ardfert Cathedral," "Kilmalkedar, Co. Kerry," and "Templemahoe, Ardfert," presented by the author, Arthur Hill, Esq., B.E. There were also "Hansard's History of Waterford," presented by the author; "The History of Cork, a Lecture by John G. MacCarthy," presented by the author, through Mr. P. A. Aylward; "Lough Erne," &c., by W. F. Wakeman, Esq., presented by the author; and "Irish Folk Lore," by Lageniensis, presented by the author, an esteemed member of the Association.

Mr. A. G. Geoghegan sent for exhibition an extremely curious bronze fibula, of most uncommon design, and a small bronze spear-head, both of which were "stated to have been found at Fethard, Co. Tipperary;" as also a silver signet ring, the device being a double cross, with a crescent and star at either side, which he had purchased in a London curiosity shop, where it was labelled "Irish religious antique ring;" but this seemed dubious enough.

Mr. Prim exhibited a silver cup, which he said Mr. Colles, Milmont, had, at his request, entrusted to him for the purpose. At a recent meeting of the Association, he (Mr. Prim) had read a paper on the Civic Insignia of

Kilkenny, in which the name of Mr. Barry Colles had been introduced as having, when Mayor of Kilkenny in 1743, caused the city sword and great mace to be repaired, and reference was then made to that gentleman having exerted himself for the time with great success, although it afterwards died out, to establish linen manufacture in Kilkenny. This cup seemed to have been a presentation to Mr. Barry Colles, in connection with that manufacture movement. It bore the inscription, in cursive characters:—

*"Barry Colles, Esq., Mayor
of Kilkenny, September, 1743."*

Over which was a shield filled with a spinning reel. Mr. Barry Colles was brother to Alderman William Colles, the inventor of the machinery for cutting and polishing marble by water-power, as still practised at the Kilkenny marble mills, by Mr. A. Colles, his great-grandson.

THE KILKENNY MUNICIPAL RECORDS.

Mr. Watters, Town Clerk of Kilkenny, exhibited some further specimens of the records in his custody. He said that he had selected for this occasion a few letters from the Irish Government to the Corporation in the beginning of the seventeenth century, of more interest, perhaps, from their being authentic original documents, than from their respective contents. But he was sure that the signatures appended, in autograph, by the Lord Lieutenant Wentworth, the unfortunate Lord Strafford, Sir Christopher Wandesforde, Adam Loftus, Sir Charles Coote, Parsons, Borlase, and others bearing historic names, could scarcely fail to have some attraction for the meeting. All the documents which he would lay before them were originals except one, which was a certified copy.

The chairman expressed the sense which the meeting entertained of the importance and interest of the valuable historic documents which Mr. Watters had kindly brought under their notice. He expressed a hope that such an inestimable collection of documents, of national value, should never come into the keeping of a less zealously careful and thoroughly appreciative custodian than Mr. Watters.

THE IRISH RUNIC INSCRIPTION.

The most important paper contributed to the Association on this occasion was one sent by General Lefroy, giving a detailed account of the opening of the tumulus of Greenmount, near Dundalk, county Louth, last autumn, by Lord Rathdonnell and the writer, when their researches were rewarded by the discovery of a bronze plate, evidently a portion of the ornamentation of a sword belt, having on one side an interlaced pattern, most Irish in its character, formed of silver let into the bronze; and on the other side, a Runic inscription—the first ever found in this country, although such inscriptions are frequent in England and the Isle of Man, and, of course, in Denmark. The paper will appear in the pages of the Association's "Journal." The newspaper accounts hitherto given of the operations in opening the tumulus, and the nature of the discovery made, are not quite correct in the details. The inscription was at first read as stating the plate to have belonged to the sword of "Tomí;" but the Danish savans to whom the inscription has been referred declare the name to be "Dongall," and they conjecture that it must have belonged to a Dane born in Ireland, and bearing an Irish name. It is to be hoped the person referred to may be identified. General Lefroy sent the precious piece of bronze containing the Rune, to be submitted to the meeting; and Lord Rathdonnell sent the bronze hatchet and the bone harp-pin which also had turned up in the course of the explorations already made at Greenmount, and which are to be resumed during the ensuing spring.

CRANNOG INVESTIGATIONS.

Mr. W. F. Wakeman contributed a paper, entitled "Remarks upon the Crannog at Ballydoolough, county Fermanagh," and a number of most interesting objects discovered in this crannog, and others in Lough Eys.

illustrating the hitherto little investigated Irish lake-dwellings. The Earl of Enniskillen, also—who has afforded every assistance and encouragement to Mr. Wakeman in these explorations—presented to the Association's Museum a specimen of the perforated deer's horns from Drumgay. Mr. Wakeman stated that he himself, besides other important objects, intended to present the Drumgay stone to the Association.

Amongst the other papers forwarded to the Association on this occasion were:—

"The Relic and Holy Well of Saint Conall, Parish of Killaghtee, Co. Donegal;" by W. H. Patterson, Esq.

"Irish Art in Bavaria;" by Miss Stokes.

"A Spanish Letter from Dermitius Cartie, to Florence MacCartie, 1600;" by Daniel MacCartie, Esq.

"Ancient Settlements in West Galway;" by G. H. Kinahan, Esq., M.R.I.A.

"The Spirit Chariot of Cucullain;" by J. O'Beirne Crowe, Esq.

The usual vote of thanks to donors and exhibitors having been passed, the Association adjourned till the first Wednesday in April.

THE BARRACKS AT ALLAHABAD.

THE new Allahabad Barracks have earned an evil reputation ever since their construction, on account of their having been, in the first place, unsuitably designed architecturally for soldiers' quarters in India, and in the second place having been, together with other military buildings required at Allahabad, "run up" in a most disgraceful manner by the job contractors selected by the Government. But "time tries all," avouches the aphorism, and it has needed no great length of time to bring about a full and authoritative exposure of the corrupt negligence with which the Allahabad Barracks and the new Gun Factory were built. At the instance of Lord Mayo, a committee of inquiry was appointed, in obedience to the public wishes, to investigate the matter of the tumble-down military buildings at Allahabad. The report of that committee has recently been laid before the Governor-General in Council, and the result has been the direct and pointed censure of the several officers concerned in the erection of the factory and barracks, both of which were unable to withstand the wear and tear of a few months' occupation by the troops. From the committee's report it appears that the failure of the centre wall of the factory building was mainly due to the worthless mortar which had been used throughout all the block of buildings. In the new barracks and officers' quarters no less than seven kinds of defects were pointed out to the committee in the buildings; while in one instance, that of the verandah walls, the work was found radically defective. Besides leaky roofs, bad plaster, defective drainage, and other scamped work, the foundations were too shallow, and a bad settlement of the walls took place "over a blind well." If some of the walls did not actually fall down—about which there are conflicting statements—they were taken down to prevent their falling. The officers' quarters were "run up hurriedly," and one of them "will probably have to be rebuilt." The officials visited with penalties for all this "negligence and incapacity and corruption" (Lord Mayo's own words in his comments on the report) are named as follows:—Supervisor Bartram, to be removed from his department of Public Works as "thoroughly unfit for the place he holds." The same punishment is dealt out to Major Jackson, of the Bengal Staff Corps, whose incompetence as a directing engineer, negligence as regards his duties, and "ignorance of the elementary principles of carpentering" are pointed out. Mr. Clarke, the present engineer in charge, is warned to be more careful in future. The superintending engineers under whom the works in question went forward, Major Cobbe and Colonel Rose, are "replaced at the disposal of the Military Department," meaning, we suppose, that their services are no longer required by the Public Works Department. They are condemned by the Viceroy in Council's Minute

as having more or less signally failed in the work of supervision. Colonel Alexander, who made a "formal inspection" of the buildings, is blamed for not making a virtual inspection instead of a merely "formal" one, and his punishment is, "to be placed on a grade lower than that in which he would otherwise have appeared" in the Public Works Establishment. Colonel Hodgson, whose duties were mainly administrative, but very imperfectly so, is censured for failing to secure efficient supervision of the works. "To him," says the "Minute," "is mainly due the blame of retaining in their posts officers who were physically unfit for the proper discharge of their duties." For unfitness in the performance of their duties in regard to the erection of the barracks, are censured—Major Cobbe, Mr. Hennessey, the executive engineer (who has been reduced to a lower grade), Major Whish (blamed for his great carelessness, and "to have a mark against his name in the department tests"). Colonel Rose is, in the matter herein, again blamed. We do not remember a Government "Minute" of a more public-spirited and appropriately condemnatory character than the present.—*Broad Arrow.*

ARCHITECTURAL SKILL REQUIRED FOR COLERAINE COURT-HOUSE.

"Courts of justice, according to the constitution of the law in this country, are to be open to the people at large, and are to be made as convenient as possible." Such were the remarks made by J. C. Coffey, Esq., Q.C., on opening the Quarter Sessions at Coleraine on the 2nd inst. Consequent on previous remonstrances made to the Grand Jury as to the want of accommodation in the Court-house, a few extra seats had been placed therein, but whoever was entrusted with the work succeeded so as to put the seats in a well—in a pit at the back of the dock, where they are quite worthless.

The local *Chronicle* of Saturday has the following in reference to this matter:—

Ever since its erection, the glaring structural defects of this building have been commented upon by every succeeding County Chairman; but by none more vigorously than by the learned gentleman who presided at the last Court of Quarter Sessions. If his remonstrance, and the threat that he will remonstrate sessions after sessions, until the Grand Jury direct the execution of the necessary improvements, have not the desired effect, the people of the town must, as the learned Chairman advised, organise such an agitation as will frighten Grand Jurors, no matter how irresponsible they may be, into the performance of what is certainly somebody's duty. The Court-house, indeed, seems to have been designed to afford the least amount of accommodation, with the greatest degree of discomfort. Between the Bench and the dock are situated the witness table and the solicitors' desks, and the seat of the Clerk of the Peace, the Bench towering above that side, and the dock on the other, thus concealing from the eye of the anxious spectator, and placing beyond their hearing, the eloquent pleaders and pleadings. If the design of the architect was to tantalise the people who attended the Court, either from curiosity or to do business, he could not have succeeded better. The entire plan of the fittings requires to be altered, so that the different sections may be put on a lower level, like that prevailing in modern ecclesiastical buildings. As we cannot ask such a radical alteration, it may be worth while to sketch one mode of improvement out of several suggested by practical men. As we have stated, the floor of the Court-house is divided into what may be roughly described as three sections—the Bench and the bar being one, the dock another, and the empty space next the door the third. It is proposed to carry, by a series of pillars from each side of the dock to the entrance a platform, raised to the height of the front of dock, and to erect upon this a gradually ascending flight of seats, so that those who are compelled to wait until their cases are called, could hear their neighbours' questions argued, or, if they wanted to consult their attorneys, they could do so on the floor of the Court-house, out of sight and hearing of the Court and crowd. We should then have a miniature theatre, with the "green room" beneath the *auditorium*. The plan could of course be improved upon; but as any change must be for the better, we hope, if the "powers that be" do not act in the matter voluntarily, that the people of Coleraine will take Mr. Coffey's advice, and "agitate, agitate, agitate" until they compel them to set about the work of improvement.

CORRESPONDENCE.

PREJUDICE VERSUS PROFIT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—So applicable to the manager of the firm where I am at present employed is the Mr. "Kilfiddlestick" of your article entitled "Prejudice versus Profit," that I am forced to congratulate you on your graphic description of that gentleman and his henchman "Oshaver." It is a pity that good masters should be hampered with such individuals; and many of my shopmates as well as myself would be inclined to expose the tricks of such people were it not that as you point out in your paper, they are the victims of a prejudice which is hard to remove. I have seen myself the most simple jobs spoiled by such men as you mention, but what could I do further than to grumble in silence? What would an enterprising man, who sought a fair return on his outlay, say to a person who took upon himself to superintend joiners if he spoiled upwards of a hundred church seats, because he did not know that "sap" was objected to by architects? Yet I have seen such a thing come to pass. Let us hope that employers, whether technically educated themselves or not, will look to their own interests, and employ men who know their business.

A PRACTICAL MAN.

TO THE EDITOR OF THE IRISH BUILDER.

DEAR SIR,—I heard a good many min talkin' about the article that spoke up for the labourin' min in your paper last week, an' wan man said he did not believe the Dublin employers wor such fools as to keep a man like Kilfiddlestick, "so," I sez, "some o' thim wor." "How d'ye know?" sez he. "Oh, bedad, how do I know it? why," sez I, "I'll tell you a story an' thin you can judge for yourself. Whin I was workin' for So-an'-so," sez I, mentionin' the name o' the place, "I used often to attend the carpenters; an' wan day, about three months affther the present mau-ager (that's in the same place now) kem to it, I was ordered to go with wan o' the carpenters to hang some sashes. By an' bye I was crossin' the yard iv a message for the carpenter, whin I was met be the manager. "Where are you goin', Jerry?" sez he. "I am goin' to thry an' get a mouse," sez I. "A mouse!" sez he; "what d'ye want with a mouse?" sez he. "The carpenter wants it, sir," sez I. "Arrah, what does he want with a mouse, Jerry?" sez he. "He sez he can't hang the sashes without wan, sir," sez I. At this he paused, and as if recollectin' himself, "come with me," sez he. So he brought me into his own office, and out of a paytent thrap an' undher his desk, which ketches the craythurs alive, he was handin' me wan which he gripped be the tail, when I sez, "what's this for, sir?" sez I. "For the carpenter," sez he. "Sure its not a live mouse I want," sez I. "Well," sez he, "can't you kill it if its dead you want it?" "But, sure," sez I, "its not an animal mouse I want." "Thin what kind iv a mouse d'ye want?" sez he, an' his face bekem as red as a turkey-cock's comb. "I want a carpenter's mouse," sez I—"a contrivance made iv a piece of lead like a mouse's tail and a piece o' sthring. The lead, sir," sez I, (for I knew well what it was from bein' in the habit of attendin' the carpenters) "is fastened to wan end o' the sthring, an' the other end o' the sthring is tied to the sash-line, and thin the lead is put over the pulley," sez I; "and whin I kem this far he turned on his heel and walked away." So I went to the store, where I was goin', whin he met me and got the lead and a piece o' twine. Whin I kem back I tould the carpenters in the shop, an' we all had a great laugh. "Well," sez the carpenter that I was goin' to attend, "this is some-thing to laugh at sure enough, but there are other things he does which are not laughin' matters." So thin they all began talkin' iv mistakes he made, an' said it was a shame, but what could be done, for he was the head man? "Now, ma bouchal," sez I to the man who wouldn't believe, "what d'ye say

to that?" "What kind iv a man was the masther?" sez he. "Sure that's the argu-ment," sez I. It was, as th' ould sayin' sez, man like masther with them, but that's just what the man who wrote in the paper was arguin' agin. The masther had the money to speculate an' give employment, an' all that was wantin' thin was the min that knew their thrade." Hopin' you will let us spake up for ourselves, Misther Edithor, I remain, your obaydient servant,

JEREMIAH.

MISCELLANEOUS.

DISCOVERY OF RUINS IN MEXICO.—Advices from Santa Fè state that Governor Arizpe, the special Indian agent for that territory, has found the Canon de Chelly, which was explored for 20 miles. The party found canons whose walls tower perpendicularly to an altitude of from 1,000 to 2,000 feet, the rock strata being as perfect as if laid by the skill'd hands of masons, and entirely symmetrical. Among these ruins of ancient Aztec cities many of them bear the evidences of having been populous to the extent of many thousands of inhabitants. In one of these canons, the rocky walls of which rose not less than 2,000 feet from the base, and whose summits on either hand inclined to each other, forming part of an arch, there were found high up, hewn out of the rock, the ruins of Aztec towns of great extent, now tenantless, desolate. In one of these rocky eries there remained in a state of good preservation a house of stone about 20 feet square, containing one bare and gloomy room, and a single human skeleton. In the centre of the room were the evidences that fire at some time had been used. The only solution of this enigma thus far ventured is that these solitary rooms were the altar places of the Aztec fires; that from some cause the people at some remote period were constrained to abandon their homes, but let one faithful sentinel in each instance to keep alive the flame that, according to the Indian traditions of these regions, was to light the way of Montezuma again to his people—their hoped-for Messiah and their eternal king. A close examination of many of the ruins proved that the builders must have been skilled in the manufacture and use of edged tools, masonry, and other mechanical arts. But who these people were, whence they came, and whither they are gone, is now probably one of the mysteries to remain eternally unsolved. Some of the ruins are reported to be stone buildings seven and eight storeys in height, being reached by ladders planted against the walls. Round houses, 20 feet in diameter built in the most substantial manner of cut stone, and plastered inside, were also found in excellent preservation. Astonishing discoveries have been made of gold and silver regions, richer than any yet known on this continent. They are supposed by well-informed persons to be the east mines, of which tradition has handed down the most marvellous tales, and the mines themselves discover unmistakable evidences of having been successfully worked ages ago.

STATUE OF THE LATE MARQUIS OF DOWNSHIRE.

—A meeting of the committee elected to carry out the arrangements for the erection of a statue of the late Marquis of Downshire, was held on Tuesday last, at the Ulster Buildings, Belfast. Mr. W. H. Lynn submitted his model of the proposed statue, and it was accepted. The statue is to be in bronze, nine feet high, with pedestal to correspond.

LETTER-BOXES IN AMERICA.—We (*Builder*) hear from New York of a new arrangement by the Post-office. The pillar-boxes are connected with a pneumatic tube that runs round the city to the general receiving-house. As the letters are dropped into the box they are blown along the tube at the rate of sixty-five miles an hour.

STREET NAMES.—Many persons, especially strangers (says the *Glasgow Mail*) to our city, must often have experienced a certain amount of inconvenience and difficulty in ascertaining street names. At night and in foggy weather it is often all but impossible, except to the most lynx-eyed, to detect the names painted several yards up on the corners of houses, partly illegible, as they often are, through exposure to wind, rain, and smoke. The Police Board have hit upon a timely, and, as we think, an admirable plan to remedy this, the consideration of which has been remitted to the Inspector of Lighting to report as to suitable localities in which to carry out the intended reform. It is proposed to paint the names on the street lamps, which will thus perform the double duty of light-givers and illuminated street directories. Apparently the Board intends confining the measure to the suburbs and the less known districts of the city, but even at the cost of some additional expense we should strongly advise it to make the scheme universal. While on this subject, we may also suggest another hardly less needed reform. Strangers, and

even natives, frequently experience a difficulty in finding the nearest pillar posts. Why should not each of these be marked with a lamp? The expense could hardly be much, and the benefit to the public would be very considerable.

CRIMINAL INSTINCT.—The builder of a church now in course of construction, when the toast of his health was given, rather enigmatically replied that he was more fitted for the scaffold than for public speaking.

To make a water-proof glue, one ounce of gum sandarac and one ounce of mastic are to be dissolved together in a pint of alcohol, to which an ounce of white turpentine is to be added. At the same time a very thick glue is to be kept ready mixed with a little isinglass. The solutions of the resins, in alcohol is to be heated to boiling, in the glue-pot, and the glue added gradually, with constant stirring, so as to render the whole mass homogenous. After the mixture is strained through a cloth it is ready for use, and is to be applied hot. It dries quickly, and becomes very hard, and surfaces of wood united by it do not separate when exposed to moisture.

PUNCTUALITY IS THE SOUL OF BUSINESS.—If persons could only be brought thoroughly to understand the importance of exactitude in the ordinary affairs of life how much they might save themselves and others whose reliance is upon them. Certain it is that a number of annoyances arising out of unpunctuality could be prevented if business men would accept the advantages which modern science holds out. Those instruments of precision, the watch and clock, should regulate all appointments and engagements, especially when they can be obtained at £2 2s. and upwards. Those who intend to purchase should send to Mr. J. W. Benson, Steam Factory, Ludgate Hill, or Old Bond-street, London, for one of his illustrated pamphlets on watches, clocks, jewellery, chains, &c., which are forwarded, post free, on receipt of two stamps.

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We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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October, 1869.

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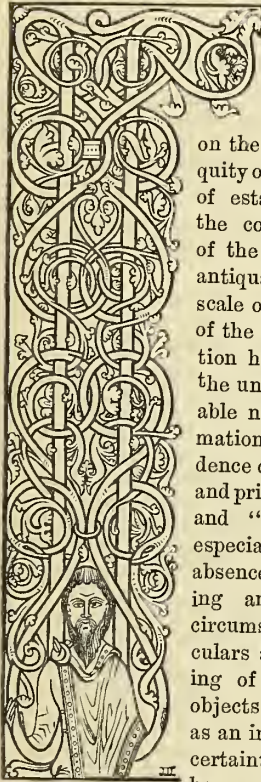
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The Irish Builder.

VOL. XIII.—No. 267.

*Age of the Bronze and Stone Antiquities
Found in the Shannon.*



N the numerous learned discussions that have taken place during recent years on the subject of the antiquity of man, with the view of establishing, through the combined researches of the geologist and the antiquary, a chronometric scale of the past duration of the human race, attention has been directed to the uncertain and unreliable nature of the information available as evidence of the relative ages and priority of the "stone" and "bronze" periods, especially as relates to the absence of care in observing and recording the circumstances and particulars attending the finding of these and other objects of antiquity; and as an instance of this uncertainty, allusion has been made to the large

collection of implements and weapons found in the River Shannon, and now forming a considerable portion of the valuable collection of stone and bronze implements in the Museum of the Royal Irish Academy.

In one of the able reviews on this question it is remarked that, "There is an excellent instance of this confusion in the case of some bronze and stone weapons which were found in the River Shannon, in Ireland, during the execution of the works carried on by the Government for the improvement of the navigation of that river, and which were presented by the Commissioners of Public Works [*recte*, the Shannon Commissioners] to the Royal Irish Academy. Whether these were mingled together when found, or separated by five or any other number of feet of alluvium, no one could tell, because the labourers made no note of the circumstances under which they had been found, and had as yet no notion of a 'stone' or 'bronze' age."

Being familiar with the circumstances under which the Shannon collection, here referred to, was made, a brief explanation may be useful, especially as it is desirable that there should be no misapprehension in relation to any circumstances brought into the discussion of so important a subject.

In deepening the River Shannon for improving its navigation, under the special Act of Parliament passed for that purpose, the excavations were made in the bed of the river at all places along its course, from the tide-way nearly to its source, where the depth of water, during the lowest state of the river, was found to be less than the standard navi-

gable depth of 7 feet in the lowest reaches of the river, and 6 feet at the upper portion of its course; these standards having been adopted as the shallowest depths for the purposes of navigation. All parts of the channel that were found, after careful soundings, to be less than these standard depths, were considered as "shoals," and were accordingly marked off to be deepened.

These shoals, or shallows, were interspersed at various distances along the course of the river, extending for about 140 miles, having in this distance long stretches of deep channel between them.

Except in one or two instances, the shallows were not formed by mud or sandy deposits from the river, such as usually occur in tidal estuaries, but nearly all consisted of a stratum of hard compact limestone "drift," composed of rounded gravel, combined with tenacious clay, and interspersed with large water-worn boulders, the whole forming a compact mass, requiring the pickaxe and crowbar for its removal. This "drift" is sometimes locally known as "mortar gravel," from its very tenacious character and its strong tendency to unite again, after being disturbed or removed, into the same compact state as before, which is the general character of the "drift" beds in the districts along the course of the Shannon. There was accordingly in these shoals nothing of a lacustrine or depository character, in which the slow sedimentary deposits going on for ages could mark a succession of eras, by which the relative age of the antiquities found in them might be approximately determined.

In some instances the deepening of these shoals was effected by means of powerful steam dredgers of the ordinary kind used for deepening harbours and navigations. But the material, in almost all cases, being found too compact and stiff for removal by this means, it became necessary to have recourse to excavation by hand labour, which was effected by surrounding each shoal with clay dams, formed outside the verge of the shoal and raised above the water level, and then laying bare the bed of the river within this enclosure, by discharging the water with powerful pumps worked by steam; when the workmen were enabled to commence the work of excavation, which seldom exceeded 4 feet or 5 feet in depth, to attain the standard depth required.

It is clear, then, from this description of the nature of these shoals, that, although exact observations of the positions in which the stone and bronze weapons were found were seldom made (the importance of noticing these particulars not being then generally understood), still, even if careful notes had been taken at the time of finding them, the result would scarcely have been of material value in reference to the subject under discussion, when the nature of the stratification and the shallow depths of the excavation are taken into account.

It follows, therefore, that, however valuable the large collection of these ancient remains from the Shannon may be, in respect to the evidence they are considered to afford of the existence of man and his comparative civilization at an early age in Ireland, the works carried out for the improvement of the navigation of that river were not of such a nature as to afford sufficient scope for observation, when finding these remains, to render them of any aid in forming an opinion on the relative ages of the stone and bronze periods.

It may also be mentioned, as accounting

for so many of these remains being found at these shoals, and as favouring the view of their having been accumulated promiscuously at or near the surface wherever they may have chanced to fall, that many of the shoals, before being deepened, were used from a remote period as fording places for crossing the river, being the chief places of communication between the eastern and western provinces of Ireland. In some cases immersed roads or causeways, formed of rough stones, were found in them, especially in those near places of burial, or other public resort; and, in later times, rude bridges of rough timber and strong wicker-work were constructed across some of these fords, to render them passable in winter; followed subsequently by the erection of the early stone bridges which spanned the river long prior to those erected during the navigation improvements.

We can well imagine then that, during a long course of ages, there would be a promiscuous accumulation of ancient implements or weapons scattered over the surface of these fords, resulting for many accidental causes, such as those occurring to travellers in crossing under—at all times—awkward and often dangerous circumstances, and especially during warfare between rival tribes, when, in advancing or retreating across the river at these passes, many of their weapons would be lost, or possibly thrown into the river for concealment, to prevent their falling into the hands of opposing tribes. Doubtless many of these weapons were afterwards recovered on due search, or perhaps were observed under water on bright days, when the river was low, when persons from time to time wading across the shoal could easily recover them. Still many would remain unobserved until afterwards found during the deepening for the navigation.

It may also be remarked that the collection of these remains found in the Shannon was not the result of any considerable number being found at a particular shoal. They are the aggregate of a few, more or less, from each of the various shoals that were deepened, but no exact particulars of the locality where each was found appear to have been given in by the persons presenting them to the Royal Irish Academy, an omission which ought not to have occurred. The idea conveyed by the catalogue of the Academy is rather that most of the collection was made at one locality, which was by no means the case. The first weapons were gathered at Meelick and Keelogue, these being the first shoals taken in hand for deepening: but at most of the numerous other shoals extending along the whole course of the river numerous other were found, and all these make up the Shannon collection as they are seen in the Museum of the Royal Irish Academy.

In some of the reviews it has been urged, in reference to stone weapons found within the last few years in France, that these weapons were most probably spurious, and not to be relied on as evidences of the ancient period contended for in the history of man. On this point it may not be inappropriate to mention that, in the course of deepening one of the shoals of the Shannon, the fact was discovered that the workmen were manufacturing these ancient stone weapons, or "celts."

In collecting these remains as they were found by the workmen, it was generally the practice to give them a gratuity for each weapon they found, or for any other artificial or natural object, however unimportant or

* By Mr. J. Long, C.E., Limerick. Paper contributed to the Royal Historical and Archaeological Association of Ireland, and published in their 'Journal.'

modern, as an incentive to be careful in watching for these remains when opening the ground and removing the material, and in preserving everything they might find; a larger gratuity being generally given for bronze or stone weapons and implements. It was observed that two of the workmen in particular appeared to be more fortunate than the rest in finding stone "celts." Day after day they brought in one or more of these weapons for the usual gratuity, until at length suspicion was excited, and observations made, to ascertain whether the particular part of the shoal at which these men were working was likely to be more favourable for the deposit of these remains, than where the other men were employed at other parts of the shoal. Further inquiry gave reason for stronger suspicion, until ultimately the discovery of the fraud they had been practising was made beyond all doubt.

Their mode of proceeding was as follows:—From the shaly beds of a neighbouring limestone, or "calpe" quarry, these two men obtained some stones of suitable texture and colour, and, after working hours, they secretly got access to the large grindstone used by the carpenters and joiners for sharpening their rough tools, and applying the intended "celt" to this grindstone (with a genuine celt before them as a pattern), they soon brought it to the required shape. They then rubbed it for some time with sharp sand, to bring it to a smoother surface, and, finally, after rubbing it with an oil rag dipped in clay or mud, to give it an ancient appearance, they delivered it up in this state, and claimed the usual gratuity.

After discovering the fraud, the collection was carefully examined, and several of these spurious celts were found and destroyed. It was easy to recognise them, for, after attention was drawn to them, their imperfect shape, and the fresh marks, partly observable, of the grindstone, as well also the nature of the stone of which they were formed, showed at once their recent manufacture. The men were discharged from the work, and the celts afterwards given in as found were very carefully examined before receiving them; but as other persons, of antiquarian tastes in the neighbourhood unconnected with the works, were in the habit of tempting the workmen with a larger gratuity than they were accustomed to get from the Shannon Commissioners, in order to obtain surreptitiously some of these antiquities, it is not unlikely that the fraud continued to be practised on them, and possibly also on persons similarly circumstanced in other localities along the river where these deepening operations were going on.

I mention the case as an authentic circumstance coming under my own observation, to show how, in so unexpected and ready a manner, a deception may be practised in these matters, even by the most illiterate persons, when there is a sufficient motive; although it may fairly be regarded as not likely to be resorted to except in the case of weapons of the simple form and easily obtained material of these stone "celts."

NOTES OF WORKS.

The new church and refectory buildings have been completed at the College of St. Stanislaus, Tullabeg, and afford much increased accommodation to the numerous inmates of this extensive institution, which now ranks as one of the most important educational establishments in this country. The recent additions measure 100 ft. by 36 ft., and have been completed under the direction of the architect, Mr. Charles Geoghegan.

On North Wall-quay we perceive a substantial building in course of erection, and nearly finished. It is intended for a foundry for Messrs. Ross, Stephens, and Walpole, ironfounders and engineers. The construction is novel, the roof and intermediate flooring being supported by iron stanchions of I form, the spaces being filled in with thin brickwork. Mr. S. Breen is the contractor.

The contract for the erection of dispensary buildings in connection with the House of Industry Hospitals has been taken by Mr. David Freeman. The works will comprise waiting-room, vestibule, medical-room, compounding department, conveniences, &c., and will be completed forthwith from the designs and under the direction of Mr. C. Geoghegan, architect.

An extensive corn store has been completed on Hanover-quay for Messrs. Green, Bros., merchants, Burgh-quay. It has been carried out by piece-work, under the superintendence of Mr. Thomas Coffey. The timber, slates, and bricks (which are all of the best quality) were supplied by Messrs. Monsell, Mitchell, and Co., of 73 Townsend-street; the iron roof, columns, and girders by Messrs. Vincent and Son, Church-street. In connection with the store there is very complete stabling accommodation for ten horses.

The new Kingstown branch of the Royal Bank will be opened to the public on the 1st of February. The works have been executed in a masterly manner in every department by Mr. Thomas Millard, under the directions of the bank architect, Mr. Charles Geoghegan.

Messrs. T. and C. Martin, timber merchants and saw-mills proprietors, are erecting an extensive range of stabling at rear of their premises, North Wall-quay. They have tried the experiment of using concrete as a material for walling, and we are informed they are satisfied so far with the result. We understand there are several works proposed to be carried out in concrete, amongst which we may mention new domiciles for the military at the Curragh. Mr. John Tall's Patent Apparatus (which we saw so successfully used at Col. Raleigh Chichester's, County Roscommon) will, we doubt not, be largely patronised for these works.

On Charlotte-quay there are being erected extensive glass and bottle works for the Irish Glass Company. Mr. Holbrook is the architect, and Messrs. Nolan and Son, contractors. Convenient to this, a large chemical factory and guano store are being built for Messrs. Eckleford and Co., under the superintendence of Mr. Holbrook.

THE ONLY WAY TO MAKE THE WORKING CLASSES SOBER.

EVER since we were able to understand what was addressed to us in plain or broken English we have heard that Ireland and Irishmen were superior to any other country or people on the face of the earth. That Ireland is the fairest, the most fertile, the most liberally endowed by nature, and, to our heart, the dearest spot in the wide world, we have no hesitation in saying—because this is *patriotism*. That in former times her children were the teachers of nations, brave, persevering, poetic, gallant, chivalrous and pious, history has taught us, and we cannot gainsay history; but that Irishmen of to-day are behind their neighbours, as a people, in everything which their ancestors possessed, we are also, alas, forced to admit. That Ireland has undergone persecutions, privations, wrongs and cruelties, and barbarous treatment at the hands of Englishmen, may be cited as reasons for her people being so far behind, and that these are truisms which even her greatest enemies must admit, is as "plain as a pikestaff" before us. That efforts have been made to repel the invader and to elevate her children morally, socially and politically, are facts which come under our notice day after day, but as almost all of these efforts have ended in miserable failures, mostly from the want of men of ability to carry them through, we begin to look upon our countrymen as most degenerate and also as the most impracticable in the civilized world. Eschewing politics altogether we shall take the social reform aimed at by the advocates of total abstinence from spirituous liquors, and inquire into the cause of its failure.

Those who are straining every nerve (even to making themselves ridiculous) to force upon the working classes the total abstinence pledge, are like those who would put a new roof upon tottering walls built upon a bad foundation. The cause of the ultimate collapse of the movement originated by Father Mathew has been the cause of all the failures which his disciples have met with since the beginning. The working classes of Ireland, always eager to embrace the opportunity of bettering their condition, rallied to the support of Father Mathew's, idea, but, after the novelty of the scheme had subsided, and that they had time to look back and reflect upon what they had done, it was apparent to the majority that there was something else needed to lead them on to the high road to prosperity if not contentment. What this something was they could not explain, and, to judge by the widely differing opinions which we hear uttered every day on the subject, this something will be likely to remain a mystery for years to come.

We have taken a view of the matter, out of which there has arisen a solution which appears to us to be the only way for making the working classes sober. It is to begin at the beginning and lay down the foundation of temperate labour and education. What we mean by temperate labour is the fixing of a certain number of hours to be set apart for the daily toil necessary to procure a living, which will not overwork the body nor create in the mind a taste for nothing else except eating and drinking and sleeping. The present hours of labour are in excess of temperate by 20 per cent., therefore it would be desirable they should be reduced by that much to make a beginning. We have proved in a former paper which appeared in these pages that after the working man has done his daily labour of ten hours which he must devote to the task that he gives in exchange for bread, he has not sufficient time to attend at lectures or libraries, where he would be taught to abstain from over-indulgence in the use of alcoholic drinks. To agitate for a reduction of the hours of labour ought then to be the first step of the temperance orator. By this means he would interest the working classes so far as to bring them together to listen to him, and while calling for the one he would be advancing materially the interests of the other. By this means he would be also proving to the working classes that he had a sincere desire for their welfare.

It may be said that the temperance orator or philanthropist does not see any necessity for reducing the hours of labour. In this he would be differing from the opinions of the working men themselves, and consequently would not be fit to lead them. If he accepted the latter alternative sooner than agitate for what he believed was not necessary, then the next best thing he could do would be to stand aside and let the working men themselves give their support to the project, and hear what they had to say upon the matter, and how far it would assist the cause of temperance, while he, the temperance orator, would lend them every assistance in his power to procure them a hearing in public. The majority of those who rushed to the standard of Father Mathew did so, we believe, with a firm resolve to remain sober and steady; others became "teetotallers" through a religious motive, and many because perhaps they saw their neighbours do it. The question has often been asked, why all those who signed the pledge in Father Mathew's days did not keep it? and a regret has as often been expressed that they did not do so, besides the prophecy which was always sure to follow respecting the improved condition of the people if they had remained true to their pledges. In our mind the principal reason against the likelihood of the unread persevering in their resolve was the want of a fortitude in adversity which enlightenment only can give. How many thousands of total abstainers who were true to their principles for years gave way under the weight of some heavy, and often very light, affliction, and

took to drinking in order to drown sorrow or drive, as they thought, "dull care away"? How often have we seen the father, from whom death snatched a baby perhaps, take to drink as the only means of showing how he mourned it? Another buries his father, or mother, or wife, and straightway he breaks his pledge, which he has kept it may be for five, seven, or ten years, and the majority of his neighbours do not blame him for doing so, but rather sympathize with him as if they too thought it was not to be wondered at. "Och, musha, the poor fellow! no wondher he would—he was a good father to him"; or, "he was the purtiest babby in the world"; or, "och its she was the darlin' crature, an' a good wife", and so on; and when it came to their own turn they went and did likewise. If ever such people became repentant and reformed they could not be trusted, for on the very slightest provocation they were drunk again. This was the foundation of pledge breaking, until it became so frequent that sensible people who never signed the temperance pledge began to look upon the administering of it to such men as demoralization. We have known people who took the pledge to-day and broke it to-morrow, and we have heard of those who pledged themselves against drink every day for a week and kept breaking it as they went along. We have known teetotalers to go on the batter because they had some words with their employers, and others who had differences with their wives. Everybody knows that a wedding or a christening is an event at which numbers of total abstinents think it criminal not to touch spirits, and summer excursions are occasions on which numbers get gloriously intoxicated. There are many more who get drunk for a change, and numerous are they who save up during a term of three, six, or twelve months purposely to have a good spree at the end of these terms. Our argument is this, that if such men were, we will not say educated, but simply read up to the point which would shew them that acting in the manner we have described was ridiculous vulgarity and unmanliness, they would avoid such habits, as the acts of many who are exceptions in these cases can testify. To create in the masses a taste for reading and pursuits that would elevate them to a position from which they could discriminate between what was true grief, true manliness and false, and vulgar notions of these feelings, they must be emancipated from the drudgery which the present hours of labour entail upon them. To the large estate owners and to employers of labour in general who may object to such a reform, let us say a few words. We have been thinking over the success of the Germans in this present war (not but that we look upon wars like this as the greatest curse that could befall a people), and the stray reports which have reached us with respect to the alleged superior education in practice in Prussia. We have been pondering over the late American struggle and the achievements won by men of our class in her armies, and these are some of our reflections:—What would a foreigner think of our gentry in Ireland if he saw one of them driving through our cities in a carriage and pair, with one of the horses lank, lean, and decrepit, with old and dirty harness patched and tied here and there with cords, while the other was a splendid well fed, spirited, animal harnessed in the most superb style? We fancy we see the reader smile at our simplicity, for the foreigner would see no such thing. Our gentlefolks in Ireland know better than that. If they drive in carriages they must have everything to match. Neither would the foreigner see one of our lords walk through our thoroughfares in a stylish and costly suit of broadcloth while his lordly head was encased in a battered and shabby hat! If the foreigner got introduced to one of our large employers or estate owners, and that, through a misunderstanding, they had an after-dinner quarrel and came to high words, the foreigner could not say with truth to the said lord of the soil that he was a mean fellow, because he was in the habit of

half starving his wife or his mother. No, he would be wrong there, for Irish lords and estate owners know better than that. But if the foreigner recollected himself he might say—"You are in the habit of half starving somebody—you are in the habit of half starving your workpeople; you only pay them 10d. a day—one quarter of what would give them a middling living." Yes, the foreigner would be right there. Our Irish gentry have farm labourers as well as farm horses, and cows, and sheep, and watch-dogs, and hounds, every one of which administers to his comfort, security, and amusement. Does he half starve any of the lower animals? No; but he does the labourer. The foreigner would have him on his hip by this taunt; and if he took a tour through our island he would find some of those who dwell in castles, and who have a host of poor people depending on them for employment, whom they cut from tenpence a-day in summer to ninepence a-day in winter. We once saw at work in a gentleman's garden one of the finest specimen of the genus man who had to hide behind the laurels and bushes when the ladies came to walk there, in order that they would not be offended by looking on his nakedness through his rags. Treatment like this, to use a common phrase, is enough to make a man go drink, yet we have temperance reformers who think otherwise and to judge by their speeches expect half starved half clad and overworked men and women to be paragons of philosophy and morality.

One of the principal causes of Saturday night's drinking in our large towns and cities is the late hour at which mechanics are paid. Often have we stood at employers' offices until eight o'clock at night, waiting for our wages. In winter time, what is more trying on the patience of workmen and their families? and what is more tempting to a man, after two or three hours standing in the cold, than the public-house, where there is a bright fire to warm him externally, and a drop at hand to do the same internally?

We could adduce numerous instances to shew the folly of this premature temperance spouting. We have, however, cut out enough work for the friends of the working man to begin with; and if they only take our advice of advocating temperate labour first, education and sobriety are sure to follow. In support of this, we shall quote some statistics supplied by Mr. C. Dennehy, J.P., T.C., in a very sensible speech delivered on the 13th of April, 1869, at a special meeting in the City Hall, against the proposed petition in support of Sir W. Lawson's Bill:—

"To come to the matter in hand, you must deal with the question as a question of social policy. If you desire to become social reformers, you must adopt another course than that here pointed out.

"Now, what do I find existing in this country as regards the middle and upper classes? I find this, that the middle and upper classes are living luxuriously, that they are living extravagantly, and that they are living expensively. I find that this is done to the injury of their families. This is all the result of over indulgence, over-eating, and luxurious living. You find that men in the highest walks of life do not think it beneath them to connect themselves with associations having for their object the plunder of their fellow-men. Such proceedings cannot fail to bring a stigma and a disgrace on civilization. These and such like persons, when they come to approach this question, say, "Oh! drunkenness is prevailing to such an extent in the country, that we must abolish the drink traffic altogether," and they set about to annihilate the little trade that has been left us, in order, as they say, to save the people.

"Now, a good deal has been said of the increase of drunkenness in the metropolis, in reference to which a great deal of misunderstanding has taken place. I had the honour of being a member of the Board of Superintendence in the years 1851, 1852, and 1853, and I have referred to some of the statistics of the Board for the purposes of seeing what where the committals for drunkenness during those years, with a view of making a comparison with those for the last three years, 1866, 1867, and 1868. I shall read the return for you. I find that the committals to Richmond prison in 1851 for drunkenness were 1,652; in 1852 there were 1,619, and in 1853 there were 1,434, making a total of 4,705. Now, during the last three years the committals to the same prison were:—in

1866 we have 703; in 1867, 525, and in 1868, 656; that is, 1,800 against 4,705. In Grangegorman the decrease of committals for drunkenness is more marked. In 1851 there were 3,691; in 1852, 3,401, and in 1853, 2,958, making a total of 10,060. In 1866, there were 1,646; in 1867, 1,239, and in 1868, 1,318, making a total of 4,200 as against 10,060 in the years to which I have referred. Let me ask if that is not satisfactory evidence that the crime of drunkenness is not on the increase in this city, but largely on the decrease? We all know that education and intelligence are making rapid strides in this country, that drunkenness is not spreading, and if the people are only let alone, without this presumptuous interference in the sale of drinks, the condition of the people would be improved, and their state would advance."

"Education and intelligence" are not making as "rapid strides" as we would wish, but whatever strides they have made amongst our class cannot be attributed to the efforts of the temperance reformers—they are the result of the existence of penny journals and cheap publications, which we hope will increase.

With the hope of winning the members of the Dublin Temperance Union over to our views, we will conclude by describing what we saw at one of their meetings a few weeks since. We attended at the Mechanics' Institute on a Sunday evening to hear the speeches, and the first thing that struck us as most remarkable in the audience was, that it appeared most select—composed of people who, to our mind, did not want to be converted. Many of the speakers were well known to us, and their speeches—which came, we have no doubt at all, from their hearts—contained only the same arguments which we heard, and which working men in general have heard, hundreds of times. Some laughter and some confusion were created by a young man who came forward, and, throwing himself into an attitude for all the world like that of a boxer's second, informed his hearers, with body bent and hands on knees, that he never took any drink in his life, and then challenged the room to produce his match, saying—

"I can read or write,
Or wrestle or fight,

any man in the house." His superiority in these accomplishments (which he repeated several times with a good deal of what might be taken for pugilistic flourishes) was owing, of course, to his total abstinence from drink. In charity, we do not like to say that the whole of his language was intemperate, if his attitudes were; but we do believe that, if it was a little more persuasive and a little more enlightened, it would have a better effect. The confusion to which we have alluded arose through a boy of thirteen years old laughing at the speaker in question at the wrong time—that is, when the audience did not feel disposed to be merry. He was immediately taken by the throat by some young men, who flourished their fists as if they were pupils of the orator, and hurled into the street. Some way or other, we think, a little toleration would have been better; but perhaps the chairman—who sat and looked as if he felt that there were a hundred and fifty pairs of eyes upon him, and that this was the height of his ambition—thought otherwise, for we are almost certain that he gave a sign by which the orator's pupils knew that the boy must be removed.

We wish it to be distinctly understood that we have no intention of making light of the efforts, however impracticable they may be, of those who seek to elevate the working man; but knowing from bitter experience how hard it is to make numbers of our class believe that what is said or written is sincere, we would like to see members of the Temperance Union prove their sincerity by other means than by merely exhorting him to keep sober. If we could prevail upon them, therefore, to discuss the question of a reduction in the hours of labour, together with a rise of wages for unskilled labourers in conjunction with their temperance movement, we feel we could promise them a hearty response on behalf of thousands of the sons of toil.

JOHN DOONER.

RELATIONS OF GEOLOGY TO ARCHITECTURE.*

In a former communication I pointed out some of the facts relating to the application of geology to architecture, but I limited my remarks on that occasion to the subject of building material. I desire now without further preface to give some account of another relation between these two sciences, in the hope that I may be able to make a few suggestions of practical value, illustrating the importance of regarding the structure of the earth and the nature of the rocks when it is intended to make use of its surface as a basis of operations for important architectural constructions. If it is necessary to give illustrative proof of the value of such considerations, I cannot do better than remind you of those remarkable leaning towers in Pisa and Bologna that have sometimes puzzled travellers. I might also mention the Cathedral of Pisa, close to the leaning tower, as an instance of a noble specimen of mediæval architecture, in which there are no straight lines, no horizontal lines, and no vertical lines, owing to a neglect of knowledge as to the nature of the foundations on a shifting alluvial bottom. The extent to which these fine buildings are injured by this neglect, which may almost be said to have reduced noble specimens of art to mere curiosity and toys, is not a subject to which I mean to do more than allude. It is quite true that with modern appliances doubtful foundations may be converted into good ones, but while we appear to have a case of perfect success in this endeavour in the Houses of Parliament at Westminster, such appliances are not always enough to render a mass of alluvial sands and gravel resting on a lower mass also of alluvial origin fit to bear every kind of structure that may be put upon it.

The selection of a site is not often left to the architect, but it is certain that his work ought to be greatly influenced by it, and that his opinion should be sought and his advice duly weighed before the site is decided on, or at least before the nature of the construction is altogether fixed. But, if this is so, it is clear that his education should enable him to give such attention to this subject as to justify him in reporting on it in all its bearings and from every point of view, and should enable him to take into consideration both general and local conditions. Among them the geological conditions ought not to be forgotten, for they will infallibly influence the cost of building, the sanitary state of the future building, the methods available for improving what is unsatisfactory, and making the best use of natural capabilities, and according to the nature of the exposure they will effect even the permanence and durability of the building. I include in speaking of geological conditions some which perhaps more properly belong to physical geography, but there will be no need to draw a distinction between them on the present occasion.

I venture to say that the site and the natural conditions of the site should to some extent determine the style of the building, the plan of the various substructures, and the uses to which they may be applied. The material to be employed also requires to have reference to these points, while the contrivances for drainage and (except in large towns) the nature of the water supply must be modified to meet the local geological peculiarities of soil and rock. It will no doubt often happen that one or more of these are fixed beforehand, and are independent of the architect, but he should be able to adapt the rest so as to take the best advantage of circumstances. In no case can geological considerations be safely neglected. I propose in this memoir to point out and illustrate as far as may be some of the more important of these relations of science to art. There is a close relation between the science I represent and the art you practise. The pyramids of Egypt rising from the dead level of the Nile

valley, and the temples of the same country, cut out of solid granite, exhibit adaptations of style to the material available and to the nature of the site based on the strictest and soundest judgment. Pyramids constructed in Egypt of brick or limestone are fit monuments for sandy plains, and seem to require a vast expanse to justify their severity and formality of outline, and their total unfitness for decoration of any kind. Rock temples, whether in Egypt or India, are immediate results from geological conditions. Impossible, except in similar positions, they possess, owing to their adaptation to local circumstances, a simple grandeur which contains the elements of the highest beauty.

To perceive the growth of architectural taste and the history of classical styles, we must refer to the geological conditions as well as the climate of the country where these styles originated. In Greece limestone of a creamy white or grey tint is the prevalent rock, and the limestone forms a plateau intersected by ravines reducing the surface to a number of flat-topped hills of no very great elevation separated by rocky valleys. Owing to the long-continued action of the weather, the limestone rock is much broken at the surface, and loose blocks of all sizes abound everywhere. In many places the whole of a hill-side is apparently made up of loose stones, naturally squared, and resembling a broken wall. Under such circumstances square forms, upright columns, and walls with rectangular openings, are inevitable. The earliest constructions in such a country must have been, as we find they were, caverns with square entrances, built of such stones as were lying about. After these came the Cyclopean structures, often described and very familiar to the architect and the archaeologist. Out of such buildings grew the earliest forms of cultivated art and the elements of all the classical styles in architecture. In the Island of Ithaca the buildings known as the School of Homer and the Palace of Ulysses are especially illustrative and instructive. In Cephalonia are other examples, especially in the remains of ancient Samos, and both on the main land of Greece and in the Morea there are many similar instances. The towns were built for protection on the hill-sides, and on the hill-top was the temple and the Acropolis. The valleys were cultivated, and for the most part, no doubt, the people lived in them, except when their safety was endangered by the approach of an enemy. The necessity of constructing the temples and great public buildings on elevated sites, where they would stand out boldly in a clear sky and be seen through an atmosphere of exceptional purity and dryness; the necessity also of using as material the rock under foot or the marble in adjacent quarries, the facility with which rock and marble could be chiselled into form, and perhaps some reasons connected with the history of the Greek people and the sources whence their inspiration was drawn, must have contributed largely to the formation of those classical styles prevalent wherever Greek civilisation penetrated. On the other hand, the cradle of Gothic art being in the North, in a colder climate and gloomier sky, and the development of that form of art being in countries where the surface consisted of wide river valleys or great forest-covered plains, where roofs were necessary and where elevation was needed to give effect to a building, the constructive material at hand consisting largely of wood, and the stones available including a great variety both of limestone and sandstone, the art of construction took a different direction and adapted itself to these very different conditions. The limestones of the North are very different from those of Greece, and exposed to the weather they change much more. Then natural conditions, added to the difference in race and all mutually influencing each other, have produced the peculiarities of Gothic architecture as the natural conditions in Greece resulted in the adoption of classical styles. I will not detain you longer by preliminary remarks, except to remind

you that Indian and Chinese architecture belong also to the country, the climate, and the people where they have originated, and that many singular varieties of style, especially those adopted in Spain and Portugal, as well as the various Italian schools of architecture, might without much difficulty be shown to be derived from or at least greatly affected by the soil and climate and the material at hand for building. In Art as in Nature there is a process of natural selection which is the real governing principle of all varieties; there is an incessant battle to determine what novelty shall take possession of the field, and to what extent the old and recognised species shall be superseded by some new modification. Every country and every century has its own special characteristic, but the groups are determined to a very great extent by the country rather than by the races. The *genius loci* manifestly affects the result.

The nature of the rock greatly influences the soil and subsoil, both of which are derived from the rock, either directly or indirectly, and must therefore have some effect on the buildings constructed on the surface. This is the case partly as involving the question of foundations, partly as being closely related to the methods of under-drainage generally required to secure the stability as well as the healthiness of the site. The architect is no doubt less dependent on the rock than the engineer, but he cannot safely neglect it. In my work on geology, published so long ago as 1842, I pointed out the importance of considerations of this kind, and although then a very young man, ventured to offer some practical suggestions in reference to it. Since that time I have had constant experience in these applications of geology—much more indeed in engineering than in architecture—and I have often had occasion to regret that some knowledge of rocks did not enter as a matter of necessity into the education of all architects and engineers.

Rocks may be conveniently grouped into several divisions so far as they affect towns, public buildings, and private residences, and it must be remembered that in most cases the architect has to deal, not so much with the rocks themselves as with the weathered and often rolled fragments derived from them. There is in most parts of England, and generally in Northern Europe, a superficial mass of moved material and soil masking the real underlying rock, and this is often so thick that digging for ordinary foundations does not get through it. Such material may, with due precaution, be safe enough, and it generally is; but there are cases where it certainly is not, and these should be understood. They can only be understood by one who has at least made himself acquainted with the first outlines of geology as regards the stratification, upheaval, and dislocation of rocks. In some countries, and in some parts of our own country, the rocks are at the surface, and then the whole question is easily decided; but when this is not the case, a knowledge concerning them can only be obtained by studying a little the science that deals with them.

Certain rocks, hard and compact in themselves, are so far fissured and broken as to allow water readily to pass through them. Parts of the millstone grit and of the new red sandstone among sandstones, the oolites and parts of the carboniferous limestone among limestones, are of this kind. They are rocks not in themselves absorbent, or partially so, but very permeable, owing to their mechanical state. On such rocks foundations are of course secure, and drainage good and easy. If such rocks can be reached, they are safe under ordinary circumstances so long as they are horizontal; but if they are in strata inclining towards a valley, and the construction proposed is near or upon the slope, it is not seldom that additional drainage and the weight of a building combined, may produce a slide, which will show itself in cracked walls and unsound foundations. Instances of such accidents are not rare. They may generally be fore-

* Read by Prof. D. T. Ansted, at Royal Institute of British Architects.

seen, and to some extent provided against, by checking drainage between the strata, especially when the strata of stone are separated by films of clay, or by thin belts of sand. But they can only be known and prevented by the aid of that small amount of practical geology I desire to recommend.

Non-absorbent rocks, such as crystalline limestones and very compact grits and sandstones, are often so cracked and fissured as to let water drain into and amongst them, and in that case they are not often unhealthy. It is only when they have no outlet, so that the entering water, stagnates in the rock till it evaporates, that they are likely to be injurious. I had an opportunity of observing a case in the Island of Corfu some years since, in which a particular valley was entirely destitute of inhabitants, though it appeared in every way desirable, and at the time of my visit, in the spring months, was perfectly healthy. There was then a swampy bottom, but no miasma. I was informed by the people living near that a little later in the season the swamp dried up, and that soon afterwards miasma would begin to form, and would continue with a perfectly dry surface till the autumn rains set in. In this case the water could not run off underground, but though possible such conditions are exceptional. It is usual for hard limestones to be fissured and cavernous, and comparatively rare to find any large extent of such rock without a ready escape for water; but, on the other hand, compact sandstones, quartzites, schists, and other metamorphic rock and granites are very usually impermeable in every sense. The water is either retained on the surface or runs off the surface, the mass of the rock—though not without receiving a small amount of water, which circulates at all depths through the agency of such fissures as exist—being practically unaffected by surface drainage. It will be evident that if the rocks, whether limestones or sandstones, or indeed of whatever nature, are not stratified, there will be nothing but fissures to carry off entering water, whereas in the case of stratified rocks much depends on the direction and amount of the inclination of the beds, and much also on the material occupying the spaces between strata. In these matters, which may be of real importance in planning and estimating the cost of a building, and also in determining the fitness of a site, the rocks must be consulted, and their language must be understood.

The case of clay greatly resembles that of compact hard rocks, which are non-absorbent except that certain clays can be depended on and certain others cannot. The clays bedded regularly, and alternating with other rocks, are simply impermeable. For certain purposes they afford excellent foundations, and may be safely trusted. The same is the case with shales, which are altered clays greatly indurated, and not working up easily into mud, but stratified either with other shales or with sandstones. It must, however, be remembered that shales very easily and rapidly weather on exposure to the air, and that what appears to be a hard rock only to be removed by blasting while in the earth, will often be reduced in a few winters into a mass of minute fragments, converted into mud, and washed away by the first shower.

But though much important and useful information may be gained by the practical man in studying the condition of the rocks, their nature, and their relative position, it is in reference to what are called superficial deposits that a familiarity with the history of deposits is most generally available.

Buildings are of course constructed on all kinds of sites; but for many reasons modern towns generally occupy valleys, and are thus distinctly contrasted with towns of other days, which were much more commonly, and for equal good reasons, perched on eminences. Valleys now traversed by rivers are far more convenient than plateaus, as more accessible both by land and water, and if less safe in a military sense than plains in some respects, they are much more so in others. But

whatever the reason, it is a fact that all important and large cities are on or very near large rivers. Thus the condition of the rocks on the surface of valleys has important significance.

It may be assumed, in the present state of geological science, that all such open valleys as now form or contain the beds of rivers have been reduced to their present shape and have derived their present condition from the passage of water through them. The beds or bottoms of the valleys have been cut out by water, the transported material with which they are covered has been moved by water, the cliffs or slopes of the enclosing hills, at whatever distance, have been brought into their present state by weather action, and small as the stream may be that runs along a narrow channel in a winding course between these cliffs or slopes, it has been sufficient in the course of time to bring about the result we see before us. All that lies immediately beneath the surface in the valley often to a great depth consists of material removed very gradually by this water, even if below that there is yet another deposit of water-transported material, consisting of clay, stones, and sand, due perhaps to ancient glaciers, or left behind by icebergs that have floated over or have been stranded upon it when many fathoms below the sea level. Sometimes there are streams entering the main river from side valleys, and each of these again has formed its channel and left its mark. The more sluggish the main stream, and the further it is from its source, the greater in proportion is the effect of such feeders. When they are torrents they sweep all before them, and deposit large stones with smaller gravel, clay, and sand. When they have had a more even course, they deposit fewer large stones and more mud and sand.

From this account of the history of river deposits, given in a very few words and requiring to be varied in detail for every stream, without exception, you may understand the nature of the material that you have to deal with in preparing foundations for a large and massive construction in almost every part of England where such buildings are likely to be erected. The clay you find may be alluvial clay deposited by the stream, or it may be boulder clay left behind by ice. It may thin out at any point, and give place to gravel, to loose stones, or to fine sand. Beneath it may be a quicksand. A certain number of tons pressing on the square foot of surface may and will cause the clay to slip away from the sands, or the run of an open drain through such sands may, by removing them, remove all support. When in the bed of the main stream, there may be a very regular deposit of clay capable of supporting any weight that could be put upon it, but the intervention of one of the old and forgotten tributaries may have cut away part of this clay for an interval, or prevented its formation, and thus one part of a building may be on a good clay and another part on loose shifting sands.

(To be continued.)

PROFESSOR TYNDALL'S LECTURE.

At the Royal Institution, London, on Friday evening, Professor Tyndall delivered a lecture upon the "Scattering of Light," which was, in point of fact, a discourse upon domestic water supply. Though the water of the metropolis only was considered, there was much in the lecture of general interest. The learned professor commenced by exhibiting the impurities of London air, the motes of a sun-beam, by the light of the electric lamp, and explained to his audience that what they saw was not air but suspended particles, capable of being dissipated or removed, and that, when so removed, the track of the beam through the air itself would be invisible. He next related that he had accompanied the eclipse expedition to Oran, and that on his return, having been disappointed as regards the special object of his journey, he had sought to turn his opportunities to account by investigating the causes of the varying tints presented by sea water. After paying a warm

tribute to the zeal and kindliness with which his wishes had been furthered by the captain and officers of her Majesty's ship *Urgent*, he described the way in which a series of nineteen bottles had been filled between Gibraltar and Spithead, and the results of an examination of them by the electric light. The bottles were themselves on the table, but were not placed in the beam before the audience, since the original differences among them had been diminished by subsidence. The general tendency of the examination was to shew that the yellowish water of coasts and harbours held in suspension a large quantity of particles; that the particles in the green water were less abundant and in finer division; and that the blue water of the deep ocean was comparatively free. Professor Tyndall explained the blue or even blue-black of the depths by displaying the prismatic spectrum on the screen, and by quenching it, at first partially and with regard to certain colours, and afterwards absolutely, by a succession of cells of increasing thickness, containing a solution of permanganate of potash or of sulphate of copper. He said that when a beam of light entered the sea, the heat rays were absorbed by the surface, the red rays by a very superficial layer of water, the green rays next, and ultimately the blue. If, however, the light encountered particles, these would reflect the green rays to an observer; while, in the absence of particles, the green rays would continue their course till they were wholly quenched. Water of great depth and absolute purity would thus appear entirely black, like a sea of ink, and would reflect no light beyond a glimmer from its surface. The professor exhibited a white dinner plate, to which a rope was attached, and which he was in the habit of having cast overboard and towed from the *Urgent*, and which always appeared green, and he also described the appearances seen on looking down the screw well of the ship, so that the water was seen by turns green—with the screw blades as a back ground—and then dark blue, with the ocean depths for a background. The white plate, which appeared as a green object when towed under water, would, he said, if ground to powder and scattered, cause the portion in which this powder was suspended to return a general green reflection. Having in this way established that the visibility of the track of a beam through water depended upon particles by which the light was reflected, Professor Tyndall next placed before the electric lamp a succession of nine bottles, containing samples of the water supplied to their customers by the various London water companies. The turbidity revealed was in every case sufficient to make the audience regard water as a very undesirable beverage. That of the Lambeth company displayed pre-eminence of a bad kind; that of the Kent company was by far the clearest; the West Middlesex company stood second in order of merit, and among the rest there was little to choose. With a reticence more eloquent than words, the lecturer avoided expressing opinions about the dirt that he exhibited; and he also expressly mentioned that pellucidity was no proof of the absence of soluble impurities. He also shewed that to cleanse water from suspended dirt was a very difficult matter; and exhibited four specimens of distilled water, a specimen once filtered by Mr. Lipscombe, a specimen that had gone through a silicated carbon filter, and a specimen four times filtered through bibulous paper in the Royal Institution Laboratory. These were clear when compared with the water of the companies, but the track of the beam was plainly visible in all. A specimen of water from the Lake of Geneva was then exhibited in illustration of great natural purity, and here a faint blue line only could be seen. This brought Professor Tyndall to the practical conclusion at which he had been aiming—namely, to an account of the water supply yielded by the English chalk formations. He characterised this as being of the greatest attainable purity, inexhaustible in quantity, and easily accessible for the supply of the metropolis. He described its natural hardness

as being such as to render it unfit for domestic use, but explained that by Clark's process this hardness could be entirely removed at the central works, and that the water might be delivered in London at a uniform temperature, free from organic impurity or suspended particles, and so soft as to be perfectly adapted for all household purposes. He described Clark's process, and illustrated it before the audience, and finally shewed active results by producing a bottle of water from Canterbury, derived from the chalk, and softened in the manner described. By the side of this was a similar bottle containing the water supplied to the Institution, and the two were illuminated together by way of contrast. The difference was like that between peaseoup and crystal. Professor Tyndall then read a portion of the report made some years ago by the late Professors Graham and Miller and by Professor Hoffman, upon the admirable qualities of this chalk water, when artificially softened, upon its fitness for the supply of the metropolis, and upon the impolicy of allowing it to pass into private hands, and concluded by saying that every word that he had read he desired fully and cordially to endorse.

PLASTER WORK AT ROYAL INSURANCE BUILDING, DAME-STREET.

WITH our number for June 1st, 1869, we gave a perspective view of the Royal Insurance Building, then just completed in Dame-street, at corner of Fownes-street, from the designs by Mr. W. G. Murray, R.H.A., and carried out by the contractor, Mr. John Nolan, Meredyth-place, in a highly satisfactory manner. We took occasion to notice that the plaster work in the principal office, consisting of centrepiece, spandrels, &c., were deserving of critical examination. Our lithograph with the present number gives an idea of the work executed. Our sketch has been taken from a photograph by Messrs. Millard and Robinson, Lower Sackville-street, by whom also the perspective of the building was photographed.

THE NEW GAIETY.

SUCH is the announced title of a building for theatrical purposes proposed to be erected "at the top of Grafton-street." We learn from an advertisement in a London contemporary that the name of the architect who has supplied the plans is Charles J. Phipps, F.S.A., Mecklenburgh-square, London, and builders in that metropolis are required to send in their tenders (will they be *wide*?) on the 4th inst.

We have heard a whisper of the name of a prominent member of the R.I.A.I., in connection with the erection of this theatre. It may be that his engagement is to play "second fiddle" as clerk of works?

Since the above was written, we have read in the columns of the *Builder* an article headed "A New Theatre for Dublin." When the patent was being sought for, we expressed our opinion that two theatres were *quite enough* in our city, particularly as those existing were not sufficiently supported, even when extra exertions were made to cater for the public taste. We print the remarks made by our contemporary:—

"During the last twenty years several attempts have been made to establish a new theatre in Dublin. The promoters in some instances had no money, but hoped to make it; and the promoters, in other instances, had already made money, and were willing to lose it. The lessees of the two existing theatres, viz., the Theatre Royal and the Queen's Royal Theatre, always gave a most determined opposition to every application made for a patent for a new house. Opposition, however, was conquered at last; and one of the successful promoters, who is in the music line, will also possess, we believe, the chief interest in the concern. The new structure, for which a patent has now been obtained, will be situated in Grafton-street. Tenders for its erection are

advertised for. It is to be named the New Gaiety Theatre, and it is to be constructed to contain fully 2,500 persons. Dublin audiences are very exacting; they like good music and good acting, yet they do not give that continuous and hearty support to the drama that is desired. For many years Dublin has only half supported her two regular theatres, and the most fashionable one of the two (which, by the way, is situated at the entrance of a most unfashionable locality), is only open at certain seasons. If the New Gaiety Theatre is intended to be a success, novelty will need to be combined with worth. The new theatre in Dublin cannot be looked upon in any other light than as a bold experiment, and though it may deserve success, it may fail for sundry reasons to command it. Ireland is not more difficult to govern than Dublin audiences are hard to please."

THE INSTITUTION OF CIVIL ENGINEERS.

On the 10th ult. the paper read was "An Account of Floating Docks, more especially of those at Cartagena and at Ferrol," by Mr. G. B. Rennie, C.E. Joseph Cubitt, V.P., in the chair.

After touching upon the various modes formerly adopted of cleaning and repairing the bottoms of ships, the author referred more particularly to the wooden floating docks introduced by Mr. Gilbert in the United States of America, and to that made by him, in 1858, at Venice, for the Austrian Naval Arsenal of Pola, in which the two largest ships that had been docked were the *Kaiser*, of 3,225 tons, and the *Ferdinand Max*, iron-clad, of 3,066 tons. The Messrs. Rennie having been called upon by the Spanish Government to make a proposition for furnishing a floating dock for Cartagena, capable of raising the class of iron-clad ships then about to be added to the Spanish navy, having a weight of from 5,000 tons to 6,000 tons, which represented the *Numancia* and the *Vittoria* types, they proposed a dock somewhat similar to that constructed at Venice, but of iron instead of wood, with certain important modifications. In the wooden structure, in order to sink the dock sufficiently, it was not only necessary to allow water to run into the lower chambers, but water had to be forced into the top compartments at the sides, to overcome the buoyancy of the material; while in the iron structure provision had to be made to prevent the dock sinking when the lower chambers were filled with water. To accomplish this, the upper part of the side walls was divided into compartments, forming permanent air-chambers, or floats, of a capacity sufficient to maintain the decks of the side walls from 6 feet to 8 feet above the water level. The author laid stress on the importance of these for the safety of iron floating docks. As an instance of the success of the Cartagena dock, he mentioned that the *Numancia*, of 5,600 tons weight, had been supported on it for a period of eighty days. A list was then given of wood and iron floating docks which had come under the author's notice, all of which were of rectangular-shaped sections, with the exception of the *Bermuda*, which was of a U section. This latter form required gates, or caissons, to close in the ends, which were not necessary in the rectangular section on account of the bottom and the keel of the ship being entirely raised out of the water. Less water had also to be discharged with the rectangular form, and the amount of pumping varied as the weight of the ship, whilst in the other, or U form, the smaller the ship the larger the volume of water to be discharged. The depth of the basement, or lifting chamber, of a floating dock, like that at Cartagena, mainly depended on the lifting power required. The thickness of the plates of the shell was $\frac{5}{8}$ inch and $1\frac{1}{2}$ inch in the centre part. For such a vessel as the *Numancia*, weighing 5,600 tons, the strain was estimated to be 1.32 ton per square inch, and for a vessel weighing 20 tons per lineal foot 1.5 ton per square inch.

Of the different plans for conveying docks to their destination, it was remarked that—that of Pola was built at and towed from

Venice, that of Havannah from New Orleans, that of Alexandria from France, and the *Bermuda* from the Thames; while those of Cartagena, Ferrol, &c., were sent out in pieces and erected at the respective ports.

The necessary repairs, painting, or cleaning, might be performed by careening, beaching where there was sufficient rise and fall of tide, raising the submerged part out of water by pontoons, or by floating the dock into a shallow basin; this latter plan being the one adopted at Cartagena.

The dock at Cartagena was 324 feet in length, 105 feet in breadth, and 48 feet in height outside; these dimensions of the dock at Ferrol were 350 feet, 105 feet, and 5 feet respectively. After giving a detailed account of the number of chambers into which the docks were divided, and the scantlings of the materials employed in their construction, the pumping machinery was described, and it was stated that it had been designed so as to be as much concentrated as possible, and thus be capable of being placed under the control of one man. The arrangement adopted was that of a pair of horizontal engines, working two pairs of lift pumps, to draw water from a common pipe, communicating with all the chambers. On the ends of these pipes were fixed the inlet sluices for filling the chambers, and on the sides smaller sluices and pipes in communication with each chamber, so that by opening all the sluices the chambers were filled, and on shutting the inlet sluices one or any number of chambers might be discharged. Thus the whole engine power might be employed in pumping out any one compartment, if it was found desirable to do so, in order to balance or level the deck. A detailed description of the engines, pumps, and sluices was then given.

The shallow basin, or dock receiver, with its three lines of ways, or slips, occupied the site of some old timber ponds. The basin was of a uniform depth of 16 feet 6 inches from the top of the quay wall, and the depth of water was 12 feet 3 inches. The entrance was 126 feet wide. The basin was 382 feet long on the north side, and 345 feet on the south side. The end was curved, the chord of which was 200 feet. From this end ran three lines of horizontal ways, or slips, radiating to a centre. Each was 725 feet long and 45 feet broad, and each was laid with four lines of timber ways, intended to receive vessels after they had been raised by the floating dock. It was estimated that six vessels might be building, or be under repair, at the same time, besides one on the floating dock. The foundations and masonry work were then described, and it was mentioned that the caisson for closing the entrance of the basin was similar to that made by the Messrs. Rennie for Pola.

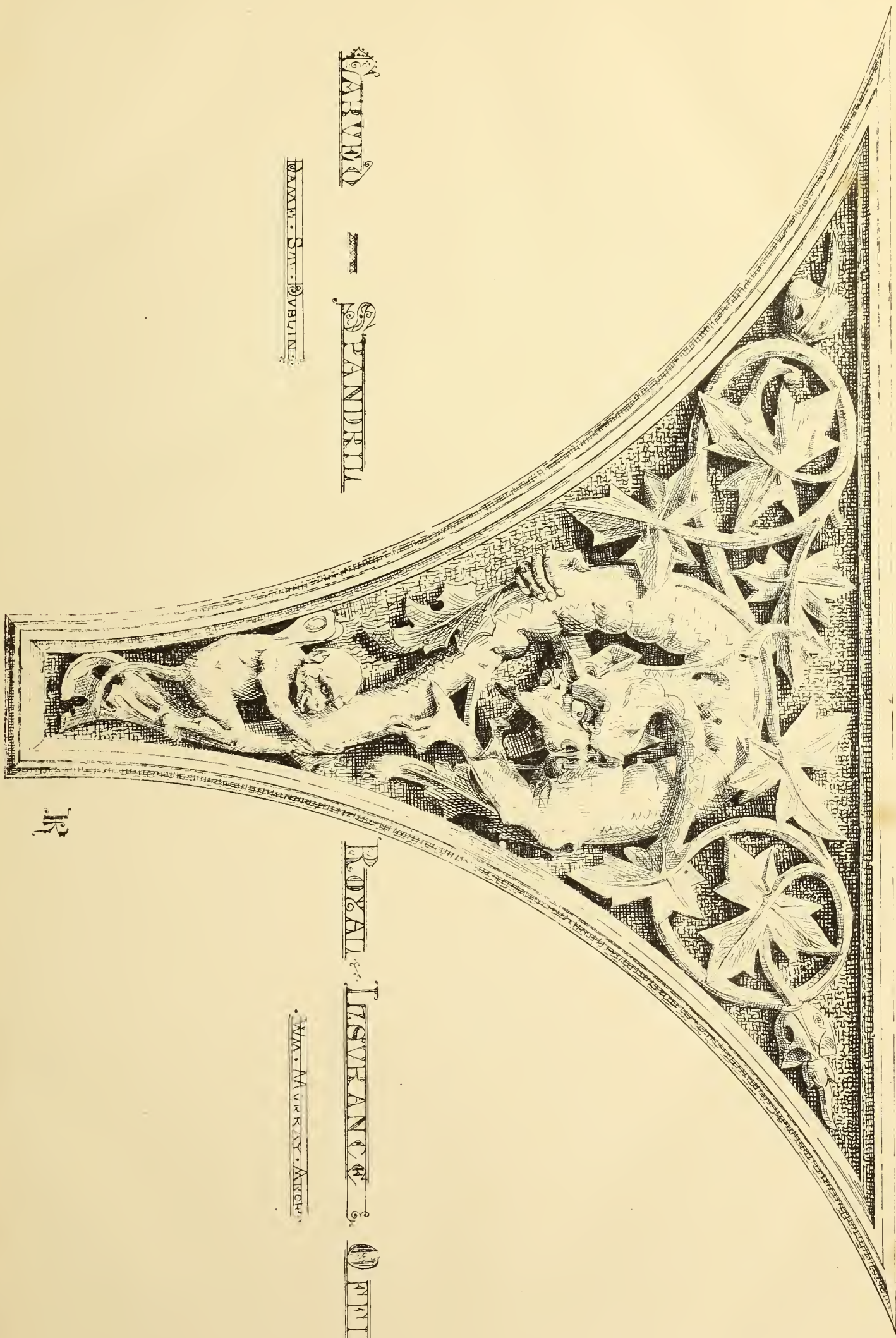
After the basin and dock were completed, water was let into the receiving basin, when the draught of water of the dock was found to be 4 feet 7 inches, giving a displacement of 4,400 tons as the weight of the dock complete. The dock was afterwards taken into the arsenal basin, and lifted vessels of various sizes—the iron-clad *Numancia* being the largest. The draught of water of the dock with the *Numancia* was found to be 11 feet 3 inches, the dimensions of the ship being, length between the perpendiculars 316 feet, extreme beam 57 feet, and displacement at the load draught 7,420 tons.

The operation in docking this and other vessels had proved the dock to be in every way efficient, and, from the arrangement of the distributing valves, it could be managed with facility, either in sinking or in lifting.

The personnel of the dock consisted of one chief engineer, one master boiler-maker, and with other assistants amounted to eighteen men in all, and with this staff everything went on regularly and without trouble.

On the 24th Mr. W. Bridges Adams read a paper on "Train Resistance on Railways." C. B. Vignolles, F.R.S., in the chair.

In this communication the author stated the general principles that should obtain in



WATVED - SPANDRU

WAME. SIM. BVELINE.

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reducing train resistance to a minimum, and in so doing the permanent way was regarded as an integral part of the train, without which it would not work at all. If the true principles of construction were accurately followed, resistance—other than that of gravity—should be reduced to the single element of axle friction. The proper area of axle bearing was defined, with a proposed plan of axle of tubular form—a true cylinder throughout; the wheels with long bosses revolving independently on the axle, and with ample collar bearing to prevent end wear of the brasses, the hollow of the axle serving as a magazine for a large supply of oil running for a very long time, and it was claimed that such an axle would be practically unbreakable.

To get rid of flange friction against the rails, it was stated that the vehicles should have their wheels and axles applied to the frames in such a way—'easter' radial—that under all circumstances each pair of wheels should be parallel to the rails, whether on curves or on straight lines, with the axles pointing truly to the centres of curves, or rectangular to the rails. In one example, for a wagon frame, the springs were shown fixed to the wagon frame with the wheels and axle boxes sliding beneath them, guided by the flanges against the rails. In another, the springs were fixed to the axle boxes, the load being suspended by long shackles, giving very sensitive movement in response to flange guidance. In a third mode it was shown how two pairs of wheels might be coupled together, at each end of a long train, while providing free movement on the sharpest curves by the combination of the 'easter' radial movement with long vertical spring shackles. The importance of self-acting continuous breaks through the whole train, arresting it in the same time and proportionate space as a single vehicle, was also insisted on, as well as the desirability of applying the wheel tires elastically, instead of rigidly, thereby preventing the risk of bursting, and eluding blows, vibration, tire friction, and noise.

The principles assumed for the structure of Permanent Way were, that it should be non-deflecting, either vertically or laterally, by depth of rail, and with a sufficiently solid head to prevent crushing under the wheels; the mode of applying the rails in their supports being such as to prevent their escaping in case of beakage; the fastenings simple, and so arranged as to lay into sharp curves where required; the types of parts as few as possible in number, and also the total number per mile; and that it was desirable to have no brittle parts, and no timber or rotting material. The plan shown was wholly of wrought iron, practically elastic in the sleepers, which keyed firmly into the ballast; surface packed with the minimum of labour, without any screw bolts, fishes, or timber, and with only four types and 10,000 parts per mile, being one-sixth less than the ordinary Vignoles' rail and sleeper; the total depth of the rail being 7 inches, and thus nearly double the vertical strength of the ordinary rail, 5 inches in depth.

The question of engine haulage was then dwelt on. The Radial Engine for curves of 4 chains radius, as used on the Great Northern, the London, Chatham, and Dover, and the Metropolitan railways, was shown with four radial trailing wheels instead of two, adapting it for 2000 gallons of water and long journeys, without a tender. The four cylinder bogie engine was analysed and compared with two twin engines coupled together, and the advantages and disadvantages discussed.

A new class of engine, adapted to give great increase of power and steadiness, was described, in which four cylinders might be used without causing oscillation. The engine had eight driving wheels, the four central flanged, with a sufficient length of wheel base for steadiness, and the end wheels with plain tires, adapted to run without flange friction round curves of 3 chains radius. The cylinders were placed at the central length of the frame, equidistant between the four wheels,—two on each side, one under the other; the

two pistons on each side working in opposite directions, and thus neutralising oscillation, each piston working a pair of coupled wheels. The engine might be worked by one set of eccentrics on the forward axles, but in case of an irregular slip of the wheels interfering with the due entrance and exit of the stream, eccentrics could be used to each pair of cylinders, and either pair have the steam shut off at pleasure, by the driver on the foot plate, when the full power might not be required. An express engine on a similar plan might have the four end wheels drivers, and the four central wheels sliding laterally to suit curves.

It was shown to be important to distribute the load over eight driving wheels to save destructive weights, using smaller cylinders and lighter moving gear, while retaining great power, and that the general system of minimum resistance of the trains and the increased power of the engines would enable a larger coal traffic to be carried on at a reduced expense. The desirability of using liquid fuel for lambent flame in the engines, and also of using the steam twice over, from small cylinders to large ones, on the improved system, was also dwelt on.

CORRESPONDENCE.

EDUCATION AND THE WORKING MAN.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—While accepting the judgment of your many correspondents, and the able and well-written articles sufficiently diluted, leaving little else than a mere watery element, I therefore would only thank you, Mr. Editor, for allowing my note (well intended) to appear in your useful and scientific journal, which gives me great pleasure on this side of St. George's Channel, in its perusal every fortnight. The present and future of the working man; let us forget the past, and see how to build up our poor country. Mr. Ruskin, in one of his lectures, speaking of the wide separation between original and second-hand execution, and of manual labour governed by intellect, says:—"We are always in those days endeavouring to separate the two; we want one man to be always thinking, another to be always working: we call one a gentleman, and the other an operative; whereas the workman ought often to be thinking, and the thinker often to be working, and both should be gentlemen in the best sense. As it is, we make both ungente—the one envying, the other despising his brother, and the mass of society is made up of morbid thinkers and miserable workers. Now it is only by labour that thought can be made happy, and the two cannot be separated with impunity." This extract contains profound truths which not only our legislators but employers and employed would do well to ponder—which are important to our present purpose. To talk of educating the working man beyond his sphere, is to talk nonsense. If any man requires education it is he who is entrusted with riches of Nature's treasury, and whose duty it is to turn them to account for the benefit of mankind. He who gives sunshine and rain to all alike had conferred upon rich and poor faculties which distinguish them from all living beings—gifts which riches cannot give, which poverty cannot take away, and before the importance of which earth's honours sink into insignificance. There is nothing in daily labour inconsistent with the development of these gifts, on the contrary their development would tend to freshen and sweeten daily toil, and, by unlocking the grand treasury of thought, would supply ideas that might convert to new uses the powers, elements, and materials which surround us. Active, fertile brains would strike out new paths, and find out new adaptations and discoveries, and find employment for all unemployed, from the spade and upwards to the skilled workman and professional architect.

Fortunately a great alteration has taken place. People now begin to perceive with some degree of plainness that the man who lives by the sale of his labour is by no means to be considered as bartering his manhood; education and the usages of modern society have taught him to feel that he has an opinion of his own, and moreover that he has a right to exercise it as well as he to whom dame Fortune has been more propitious in the distribution of her worldly favours;—that in fact what is due through the teachings of religion or by the requirements of justice from man to man must not be put out of view, that the higgling of the market by reducing the price of labour may reduce also the working man's condition below the brute's level. Moreover, the better educated and enlightened the workman becomes, the more interesting will labour be. Ruskin, in the extract already made, says—"It is only by thought that labour can be made happy." He adds—"All professions should be liberal, and there should be less pride felt in peculiarity of employment, and more in excellence of achievement." Now this is a view of labour worthy of attention. Make labour happy and you make labourers contented—let every man strive to be a master of his art. The instance of *the foreman and the mouse*—here was no technical knowledge on his part. But the experience of the reader will no doubt supply similar instances where sacrifice of life, defective scaffolding, and loss of material diminished the employer's wealth, which a little education, intelligence, and technical knowledge on the part of a skilled practical foreman might have prevented. It is this—as I am bound to admit after an experience in England of twenty years—that it is the energy of individual life and example acting throughout society which constitutes the best practical education of Englishmen. Men from colleges and academies have no calling to the practical education of daily life, from the workshops and manufactories in all the busy haunts of men. Action and self-culture—a kind of education—have made great men who added source of national growth. How many men do we find complaining that they have no luck? No doubt some men are really unfortunate, and fail after working hard in the hope of gaining some cherished object. Let it be granted that labour will not always bring success. But it may be affirmed—and the history of mankind proves it—that labour is the only sheet anchor we can trust to, and that without it success in life is almost impossible. We may rest assured that unflinching industry will stand us in better stead than anything else; reforms are not instituted by growling and fault-finding. There is an old fable of Esop's which shows how a waggoner who was bemired extricated himself. The hopeful genius in question immediately upon his accident sat down by the bogside, and, bitterly bewailing his predicament, called on Jupiter to help him. Instead of doing so, Jupiter gave advice, and told the man to put his own shoulder to the wheel and help himself—in effect, to stop grumbling and go to work. The waggoner did this, was successful, and went on his way rejoicing. There are a great many people in the world like the waggoner in this fable. They are always in hot water—forever in trouble. They throw the blame of their own misdeeds and want of judgment on others, and, if one might believe them, society would be in a shocking state. They rail at everything lofty or lowly; and when they have no grumbling to do, they begin to despair. Look within yourself for the source of success; follow your calling patiently; be temperate, and frugal, and reliable, and you will leave a long way behind on the road the man who blindly waits for something to turn up. Let grumblers form a select circle by themselves: let them herd together; give them the cold shoulder when they appear, and make them uncomfortable during their sojourn; and if they cannot be cured they may be more easily endured, and perhaps discover the error of their ways, and reform. T. FAGAN.

Over Darwen.

GLASTONBURY ABBEY, PAST AND PRESENT.

(Concluded from page 18.)

We now come to the great hall, or refectory, where the whole convent assembled at meals. At Glastonbury there were seven long tables, around which, and adjoining the walls, were benches for the monks. The table at the upper end was for the abbot, the priors, and other heads, the two next for the priests, the two next for such as were in orders, but not priests, and such as intended to enter into orders, the lower table on the right hand of the abbot was for such as were to take orders whom the other two middle tables could not hold, and the lower table on the left of the abbot was reserved for the lay brethren. In a convenient place was a pulpit, where one of the monks, at the appointment of the abbot, read portions of the Old and New Testament in Latin every day during dinner and supper. The routine of dinner, as indeed the routine of all their meals, was ordered by a system of etiquette as stringent as that which prevails in the poorest and smallest German court of the present day. The sub-prior, who generally presided at the table, or some one appointed by him, rung the bell; the monks having previously performed their ablutions in the lavatory, then came into the great hall, and bowing to the high table, stood in their places till the sub-prior came, when they resumed their seats; a psalm was sung, and a short service followed by way of grace. The sub-prior then gave the benediction, and at the end they uncovered the food, the sub-prior beginning; the soup was then handed round, and the dinner proceeded; if anything was wanted it was brought by the cellarer, or one of his assistants, who attended, when both the bringer and receiver bowed. As soon as the meal was finished the cellarer collected the spoons; and so stringent was the etiquette, that if the abbot dined with the household (which he did occasionally) he was compelled to carry the abbot's spoon in his right hand and the others in his left; when all was removed the sub-prior ordered the reading to conclude by a "Tu autem," and the reply of "Dei gratias," the reader then bowed, the remaining food was covered, the bell was rung, the monks arose, a verse of a psalm was sung, when they bowed and retired two by two, singing the Miserere.

A little further towards the south stood the guest-house, where all visitors, from prince to peasant, were received by the hospitaller with a kiss of peace, and entertained. They were allowed to stay two days and two nights; on the third day after dinner they were expected to depart, but if not convenient they could procure an extension of their stay by application to the abbot.

Not far from the refectory, towards the west, stood the abbot's private apartments, and still further to the west the great kitchen, which was one of the wonders of the day; its capacity may be imagined when we reflect that it had frequently to provide dinner for four or five hundred guests; but the arrangements and service of the kitchen deserve notice. Every monk had to serve as hebdomadary, or dispenser, whose duty it was to appoint what food was to be dressed, and to keep the accounts for the week. Upon taking office he was compelled to wash the feet of the brethren, and upon yielding it up to the new hebdomadary he was obliged to see that all the utensils were clean. St. Benedict strictly enjoined this rule upon them, in order that as Christ, their Lord, washed the feet of his disciples, they might wash each other's feet, and wait upon each other's wants. The Glastonbury kitchen is the only building which still remains entire; it was built wholly of stone, for the better security from fire; on the outside it is a four-square, and on the inside an eight-square figure; it had four hearths, was 20 feet in height to the roof, which ran up in a figure of eight triangles; from the top hung suspended a huge lantern. Attached to the kitchen was the almonry, or eleemosynarium, where on Wednesdays and Fridays the poor people of Glastonbury and

its neighbourhood were liberally relieved. This duty was committed to a grave monk, who was called the almoner or eleemosynarius, and who had to enquire after the poor and sick. No abbots in the kingdom were more liberal in the discharge of these two duties of their office, hospitality and almsgiving, than the abbots of Glastonbury. It was not an unusual thing for them to entertain 500 guests at a sitting, some of whom were of the first rank in the country, and the loose charge of riotous feasting which has been thoughtlessly made against the monastic life by hostile historians becomes modified when we recollect that in that age there were scarcely any wayside inns in the country, and all men, when travelling, halted at the monastery, and looked for refreshment and shelter as a matter of right; neither had that glorious system of union workhouses been thought of, and therefore the sick and poor fell at once to the care of the monastery, where they were cheerfully relieved and tenderly treated. Last, but not least, was the department for boys—another little detached community, with its own school-room, dormitory, refectory, hall, &c. One of the monks presided over them. They were taught Christian doctrine, music, grammar, and if any showed capacity, the subjects necessary for the university. They were maintained free, and had to officiate in the church as choristers—a system maintained almost to the letter up to the very present moment. William of Malmesbury records that in the churchyard of Glastonbury Abbey stood some very ancient pyramids close to the sarcophagus of King Arthur. The tallest was nearest the church, 26 feet in height, consisting of five storeys, or courses; in the upper course was the figure of a bishop, in the second of a king, with this inscription—HER. SEXI. and BLISVERH. In the third the names WEMCRESTE, BANTOMP, WENETHEGN. In the fourth—HATE, WULFREDE, and EANFLEDE. In the fifth, and last, the figure of an abbot, with the following inscription—LOGVVOR, WESLIELAS and BREGDENE, SVVELVYES, HVVINGENDES and BERNE. The other pyramid was 18 feet in height, and consisted of four storeys, whereon were inscribed in large letters HEDDE, Episcopus BREGORRED and BEORVVVALDE. William of Malmesbury could give no satisfactory solution to the meaning of these inscriptions beyond the suggestion that the word BREGDENE must have meant a place then called "Brentacolle," which now exists under the name of Brent Knowle, and that BEORVVVALDE was Beorwald, the abbot after Hemigselus.

We have endeavoured to conjure up from the shadowy realms of the past some faint representation of what Glastonbury Abbey was in the days of its glory; let us now transfer ourselves from the age of towered abbeys, wandering pilgrims, monks, cloisters, and convent bells to this noisy, riotous, busy time in the year of grace 1865—from the Glastonbury Abbey of the sixteenth century to the Glastonbury Abbey of to-day.

It is only within the last ten years that the deep slumber of that quiet neighbourhood has been disturbed by the noise and bustle of this busy life—that a railroad has gone out of its way to upset the sedate propriety of ecclesiastical Wells, or the peaceful repose of monastical Glastonbury; hitherto the stillness and quiet of that lovely country was the same as when mass was sung in the superb cathedral of the one place, and the palmer or the penitent bent his steps to the holy well of the other. But alas! the life of the nineteenth century has broken in upon it; the railway has dashed through that beautiful valley with its sacrilegious march; and at Wells, the Cathedral of Ina, with its matchless front, studded with apostles and martyrs, kings, bishops, knights, and mystic emblems, vocal as it were with history, now frowns upon the contentions of two rival companies; whilst at Glastonbury there is a railway station erected almost over the very bones of the saints. Alighting from this, we make our way to the ruins; but as we go, will just view their past history. After the dissolution of the abbey there was an effort made to restore

it in the time of Mary, but unavailingly; from that period it was allowed to fall into decay. It is difficult to estimate whether the hand of man or the hand of time has been busier about its spoliation. At the period of Cromwell, who loved to worship God in the "ingliness of holiness," it must have been nearly entire, but that hero could not pass the town without putting a shot through those unoffending ruins in the name of the Lord, which act, however appropriate as an expression of Puritan feeling, was sadly detrimental to the architecture of Glastonbury Abbey. It has suffered much also from the gross vandalism of the people themselves. Naturally a simple people, they of course knew nothing of antiquarianism, although that science is irreverently said to muster many simples among its votaries. For years then it was their practice to use the materials of the abbey for building purposes, and it is not difficult to find scattered for miles around the country, in farmhouses and even in hovels, portions of sculpture over doorways and fireplaces which speak of mediæval workmanship. But a worse degradation still befel the place, and the walls which at one time would have been regarded as invested with the odour of sanctity, and even now are sacred to us as a priceless historical monument, were actually sold as materials for mending the roads, to the lasting shame of overseerdom and the powers that were at Glastonbury. But the day for building huts or mending roads with ecclesiastical sculpture is gone, and the little that remains of Glastonbury Abbey has found its way into the hands of those who appear to know how to preserve it, and have the intention to do so. After all this decay and vandalism very little is left of the old abbey—some portions of St. Joseph's Church with the crypt—some walls of the choir of the great church; the two east pillars of the tower forming a grand broken arch, a lasting memento of the original splendour; there are portions also of some of the chapels and the abbot's kitchen, the most complete of all. The eye is at once arrested by the portals of St. Joseph's Church, which still remain in a tolerable state of preservation, sufficient to enable one to form an idea of what a triumph of decorative art they were. Nothing could be more profusely ornamented than the northern portal; it was composed of semi-circular arches, receding in succession and diminishing in size as they recede into the body of the building; the exterior arch being about 12 feet by 11, and the interior 9 feet by 6. The four fasciæ are covered with sculptured representations supposed to be commemorations of royal and noble people connected with the monastery—saints, pilgrims, and knights. The forms graven on these fasciæ are interpreted in Warner's History of Glastonbury to represent the following subjects. The uppermost fasciæ is almost obliterated, though still showing a running pattern of tendrils and leaves interspersed with figures of men and animals; towards the centre the sculpture is much mutilated, though something can be traced like the effigy of a person in long robes seized on the shoulder by a furious animal. Beyond him are indistinct remains of three or four upright figures, and the rest is filled up by foliage. The second fasciæ is made up of eighteen separate ovals, each of which contained a distinct subject: the two first are defaced; the third contains a person apparently kneeling; the fourth, a female with a head-dress sitting on a couch; the fifth, a female on horseback; the sixth, a man on horseback; the seventh, a crowned personage on horseback; the eighth, the body of a deceased person stretched on a couch, with a canopy over it, the corpse covered, and the head resting upon a pillow; nine and ten the same; eleven, a knight in a coat of chain armour, with a pointed shield charged with the cross, indicative of a Crusader; twelve, a regal personage with a flowing beard and in long robes, crowned, and sitting on a throne; thirteen, a knight in chain armour falling from his horse as if wounded; fourteen, a figure like the former, the right arm stretched out and holding a sword which impales an

infant; fifteen, the upright figure of a female with a veil, apparently in mail costume; sixteenth, another body stretched out on a couch; seventeenth, unintelligible; eighteenth, a figure of a pilgrim. The intervals between all these ovals are sculptured into foliage. There can be very little doubt that the subjects contained in these ovals were the representations of monarchs, knights, persons, and events connected with the history of the abbey. The fourth fascia is much mutilated; but Warner thinks it referred to some act of munificence, from the canopied couch it displays with a figure recumbent upon it, and representations of angels guarding it. The portal towards the south was on a similar plan to the northern, but with five instead of four fasciæ. One, two, and five are covered with finely-chiselled foliage; the third is plain; the fourth only partially worked. According to the authority already mentioned, the only two ovals which are complete represent in the first the creation of man, and in the second the eating of the fruit. In the former is to be seen an upright figure with a nimbus or glory round its head, designating the Almighty in the act of calling man into being, and at his feet is man himself. In the latter there is the tree with Satan behind it, and Adam and Eve sitting with the apples. The appearance of these two portals, independent of the interest lent them by Warner's speculations as to their import, is very striking. In their perfection they must have been masterpieces of that exquisite taste and minute labour which the men of that age devoted to the embellishment of the church. Taking the ruins in a mass, it would be difficult to find anywhere such a specimen of broken grandeur.

A NEW METHOD OF EXTENDING EXISTING BRIDGES AND REDUCING STEEP GRADIENTS.*

I HAVE the honor to introduce to your notice this evening a very simple and economical method of effecting comprehensive improvements to old bridges, which have become unsuited to the exigencies of increased traffic on account of the steepness of their gradient or insufficiency of width; and, were it better understood by the general public that, by a moderate and judicious expenditure of capital, such unsightly and inconvenient structures could be rendered most commodious and attractive adjuncts to their respective localities, there is no doubt that such venerable stumbling-blocks would quickly assume transformations of such material character that their original founders would fail to recognise the creations of their own fancy.

If a cathedral or other public edifice is considered in danger, or deficient in the requirements of taste or usage of the present period, we do not condemn the defective pile to total demolition if it be found, upon careful examination, that it is capable of substantial modernization; but by entrusting it to the care of a competent artist we find not unfrequently that, like Cinderella, it only required to be attired in the robes of her more favoured sisters to remain amongst us, 'a thing of beauty and a joy for ever.' Let us not exclude from such magical treatment those important time-enduring trade links connecting our noblest thoroughfares, but accept the means which the advance of science has placed at our disposal for exchanging, like Aladdin's lamps, "old bridges for new."

It has been said by a witty Frenchman that the English built mountains to cross over their rivers. Had our observing continental traveller paid a visit to the "City of the Hurdles," he might have added that the Irish convert their rivers into main sewers, our Liffey only requiring to be arched over to entitle it to the term "*cloaca maxima*."

In the present day the man who would propose to carry into execution such a monstrous deformity as a narrow and steep bridge where a wide and level roadway could be obtained, would, if he were permitted to accomplish

his purpose, be liable to punishment under Martin's Act for cruelty to animals.

When a bridge has a steep ascent, or is too narrow for its purpose, all vehicles in crossing are obliged to proceed at a very slow pace, thus causing concentration of obstruction and in many instances total stoppage, involving great loss of time to carriage proprietors, and inconvenience, annoyance, and damage to pedestrians, while a perfectly flat and level roadway admits of the traffic being carried on at the ordinary rate, as on the streets at either side. Many of the visitors present must have witnessed this, and had their patience tried when, during a public procession, they made the perilous journey over our *pons assinorum*, or "bridge of sighs," vulgarly called Carlisle Bridge, about which we have heard so much and done so little for the past twenty-five years, although we have had this most interesting patient prescribed for in every possible manner except the way in which the public can best understand and appreciate it—the practical way; it has even formed the subject of an amusing drama, and become the theme of many a poet's song.

To illustrate more familiarly the proposed means of extending and lowering inconvenient bridges, I will invite your attention to the model and diagrams showing the effect of the much-abused Carlisle Bridge when extended to the full width of Lower Sackville-street, and divested of the unnecessary mountain under which it appears to be sinking into the deep waters. The bridge as at present was completed in or about the year 1798, from the designs and under the direction of James Gandon, architect, to whose skill we are indebted for the Four Courts, Custom House, and many other noble evidences of his genius. The contract for the work was taken by the late Mr. Thomas Baker—a name justly celebrated in connection with many of the public monuments of the time; and I am informed by his representative and grandson, Mr. Thos. Cockburn, that in laying the foundations it was found necessary to use caissons or capacious frames of timber, on which the masonry was packed, and the whole mass allowed to sink until it found a trustworthy bottom, and that one of these caissons was upset by the tide while floating, and caused the death of one or two of the workmen. It would appear that even the precaution thus taken for securing a good foundation was not a complete success, as from the treacherous nature of the substratum we find that one of the piers on the north side has sunk 8 inches below the others; but as this settlement presents all the appearance of having taken place soon after the completion of the masonry, and no appearance of any recent sinking being observable, it is not at all probable that this defect will increase for the next century, even were a much greater weight distributed over the present piers, which has been well proved during the last eighty years.

The original design by Gandon shews a very clever means of reducing the weight on the central piers, while affording ample abutment to the haunches of the arches, by the adoption of circular tunnels 11 feet diameter, which penetrate the ridge transversely, the ends being concealed by the ornamental masonry of the river façades. I am indebted to a brother architect, Mr. Charles Papworth, for being able to lay before you the original elevation of the bridge, as designed by Gandon, in which the tunnels are clearly shown over south central pier. Several of the designs by Gandon are at present in the possession of the gentleman who kindly lent me the elevation relative to our subject.

I believe I am correct in stating that, in the memory of the oldest inhabitant, the present structure as it now stands has been regarded as a disgrace to the noble site it occupies, involving extreme danger, loss, and inconvenience to the city at large; the cause of numerous accidents to life and property, and in every way unsuited for the increased wants of the commerce of the city. Feeling assured that such a blot upon our civic escutcheon could not be allowed to remain much longer unremedied, it occurred to me

some years ago that if I devoted time and labour to show in what manner this crying evil could be speedily remedied, the subject would receive the support of every man who had the interest of his native city at heart to the exclusion of every other selfish influence. The encouragement I met with from the local press of all shades of politics, the leading members of the Corporation, the most eminent commercial and financial firms, and from each of our worthy city representatives, induced me to proceed in bringing the scheme under the notice of the public, having strong faith in the old adage "*Vox populi vox Dei*." When submitting the project to the prince merchant, to whom we are indebted for the restoration of St. Patrick's Cathedral, the remark made by him, after full consideration of the subject, was sufficiently flattering—"I could not withhold my support to this undertaking," adding the honourable name of Sir Arthur Guinness to the long list of eminent supporters who had already expressed their approval and co-operation. We have of late heard and read much of what might or might not be done in the way of demolishing the old bridge and erecting in its place a new one regardless of time, cost, or convenience, to this overtaxed city, but the good time coming has hitherto proved a fond delusion. Scarcely had expectation reached its culminating point upon this great central deformity in our capital when suddenly the enemy makes a diversion in favour of expending £14,000 on Essex Bridge; the effect of such a proposition being well calculated to defer any efforts being made for carrying out the former project, which is vastly of more importance to the community. Thus, like the dog and the shadow, forsaking the certainty for the chance of the uncertainty. It is not my desire to disparage any attempts to treat Essex Bridge or any of the other bridges in a similar way to that proposed for Carlisle Bridge, but it must be apparent that the rapid and unexpected anxiety recently evinced to get this measure passed, to the prejudice of the other more urgent demand, has been made by parties less interested in the welfare of the ratepayers than for the advancement of private ends, and as such have not met with public approval.

I shall now explain as briefly as possible the means by which the reduction of the roadway over Carlisle Bridge may be effected, and the extensions completed, without obstruction to the ordinary traffic in any way, the old bridge being allowed to remain as at present until each side extension has been thrown open, thus saving all the delay, cost, and impediment of a temporary bridge during the execution of the works.

The present bridge is to remain undisturbed for traffic during the entire time the extensions are in progress, which it is intended shall be effected as follows:—Hollow cylindrical cast iron piers to be sunk in sections parallel to each of the present piers, allowing them in the first instance to find as deep a bed as their own weight can effect, the joints being then made water-tight. Caps with self-closing air-tight trap doors are securely screwed down upon the tops of each of the cylinders, leaving the entire space within for the action of the excavators. A portable engine is employed which propels air into the cylinder, forcing the water within to descend until the workmen are enabled to reach the bed of the river, on which they commence to excavate, hoisting up their excavations by chain buckets passing through the above mentioned self-closing traps, which prevent the escape of air while allowing each bucket to pass through and be emptied in rotation. The men thus working in the bottom are well supplied with air under pressure, without the expense or risk of coffer-dams or pumping. As the excavation proceeds the cylinders gradually subside and reach a secure foundation. When this has been obtained, cement concrete is filled in from above, forming a solid pier encased in cast iron, the diameter of each being less than the width of the old piers; they do not in any degree diminish the water-way. The bearing girders will rest upon these cylinders,

* By Charles Goughgan, C.E., F.R.I.A.I. Read before Royal Dublin Society on the 16th ult.

extending from them to the haunches of the arches of the present bridge, and form the supports from which the arched ribs spring, diminishing in depth as they reach the crown of the old arches, leaving the under side of each level throughout. On these arched ribs the roadway girders are laid, having buckle plates of iron on top forming a footway for the metalling or paving of roadway. No portion of the old stone arches will need to be disturbed except the immediate crown of the central arch, for each arch course of which a cast-iron rib will be substituted of much less depth than the stone courses, in order that the gas and water mains may be laid in the depth of the rib itself, thus allowing the highest part of the crown to be reduced to a perfect level with the approaches at either side. By this mode of construction the present bridge will be relieved of a large amount of useless weight in the reduction of roadway, and the retaining quay walls, which are now unsafe, will be preserved by the abutment ribs of the proposed extensions.

When the sides have been opened for traffic, the reduction of the central crown may be commenced. The arch in the centre of the river being the only one which will require to have the upper part of crown disturbed, the side arches being allowed to remain as at present. A scaffold being erected under this central arch, constructed movable so as that it may be pushed forward transversely as each portion of arch has been altered, while the arch stones or voussoirs, as they are called, are supported from the temporary centre until, as they are removed by a crane travelling on a platform on top of old bridge, space is left for the insertion of a cast metal beam dropped into its place from above, which in its turn becomes a substitute for the arch stones and having less depth than the former, and placed at such distance apart as may be found desirable to admit of gas and water pipes being laid between the beams in their depth. Special provision to be made for the double mains for the Vartny water supply, which are protected from above by arched metal plates laid transversely to the length. It will be at once apparent that the effects of this mode of construction will be to afford a permanent support to either side of the quay walls adjoining the old bridge, which now appear even to the most unpractised eye to be in a state likely to cause considerable expenditure for reconstruction, if adequate measures be not speedily taken for their ultimate safety.

Although it is the province of the showman to dilate upon the marvels of the subjects which form the stock of his exhibition, I trust I may be excused for forcibly directing the attention of the distinguished audience who have done me the honor of being present this evening to the effect which may be produced on the grandest site of the second capital of the United Kingdom, if we can but realize a bridge 153 feet wide, perfectly flat, economical, symmetrical, enduring, and architectural, superior to most of the modern flat bridges in Europe, inferior to none; and to accomplish this, I solicit the support of all disinterested citizens who have no other cause than that of the public welfare at heart. In introducing my model and plan for rendering this present inconvenient and unsightly structure a commodious, substantial, and attractive public improvement, I have laboured during the last five years to bring every important feature of the project fully before the public, in order that it might recommend itself, standing on its own merits solely. The speed and facility with which the works can be effected, the total saving of any temporary building during its progress, the fact of saving the outlay on restoration to the quay walls on either side of the river adjoining the bridge, and its extreme economy as compared with a new bridge of similar extent. The old bridge has been reported upon as sound and substantial by two engineers of high eminence in this city, to whose testimony I am enabled to add the valuable opinion of Colonel Lake, who volunteered in the kindest manner to

accompany me in a personal survey, even at great inconvenience and risk, on the river at low water, to ascertain the exact state of the arches, piers, and abutments, and whose report has been already placed before the public through the press. With regard to the general effect when complete, I must leave more disinterested critics to pronounce, while I am desirous of inviting the fullest investigation into the entire project, having received the most flattering testimony in favor of the scheme from eminent scientific and practical men up to the present time. And—unless it can be clearly demonstrated that there exists sound reasons for demolishing the old bridge and erecting in its place a new one regardless alike of time and cost—I am of opinion that, by the help of the leading journals of the day, favored by the experience of public opinion, the ratepayers may have the satisfaction of seeing this great central feature of attraction carried into execution without delay at an outlay not exceeding at most £29,000, which amount if even chargeable upon the city valuation at $4\frac{1}{2}$ per cent. would not exceed three farthings in the pound.

THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held on the 23rd ult.,

Professor HENNESSY in the chair.

Professor Robert S. Ball read a very interesting report (illustrated by diagrams and scientific apparatus) upon the resistance of the air to the motion of atmospheric vortex rings. Measuring the time occupied in the passing of the vortex ring to certain distances by the assistance of Wheatstone's chronoscope. Professor Ball stated the result of a long series of experiments to be the discovery that the resistance of the air which finally stops and disperses the ring is directly proportioned to the first power of the velocity.

The Secretary, W. K. Sullivan, Ph.D. in the absence of Dr. Macalister, read an abstract from a paper by that gentleman, entitled "Additional Observations on Muscular Anomalies in Human Anatomy, with a catalogue of the principal muscular variations." It was stated in the paper that there are upwards of 2,000 deviations from the normal arrangement of the muscles in the human body, over 1,500 of which had been discovered by Dr. Macalister himself.

The Secretary also read a paper by Mr. R. R. Brash, on "An Ogham Stone at Kilbonane, county Kerry." The stone on which the Ogham characters were found lies in the churchyard of Kilbonane, between Killarney and Killorgan. It is left in a state of utter neglect, and has already received a crack in one place. It contained four inscriptions, the first of which Mr. Brash read as GANN MAQUIT ADDILONA, which he interpreted as being the names of three persons. The second inscription was NIR MA AGNISSICON I DDALA. The third was LANI TA I DAG NI; and the fourth NGONI. He considered these inscriptions the most remarkable of their class hitherto made. He was unable to offer a conjecture as to the nature or object of the inscriptions, but he commended them to the careful examination of Celtic scholars. He concluded by expressing his belief that a true deciphering of Ogham inscriptions would yet lead to the acquisition of valuable information relating to past ages, and recommended the Academy to take some means for the preservation of this monument from further exposure to injury.

The Secretary read a paper, by Mr. Alexander G. More, descriptive of a bronze instrument found near Tara, which was exhibited, and which exactly resembled in every respect, except that of its material, the spike of a boy's peg-top. Nothing like it was to be found in the collection of ancient bronze instruments in the Academy; but, from the fact of its being bronze, and from the marks of antiquity upon it, the writer concluded that it must have belonged to a very early age.

Dr. O'Donovan, in moving that the paper be referred to the council for publication, observed that the common notion was erroneous that the bronze was a determinable period. Bronze is used at the present day. The stone period lasted in Europe until the middle of the 14th century. There was no reason why bronze should be earlier than iron, and there were many why iron should be earlier than bronze. If the instrument now exhibited were of iron, he would at once say it was the head of a cross-bow bolt or javelin.

The Secretary agreed with Dr. O'Donovan as to the bronze age. There was no doubt that in Courland, stone, bronze, and iron were used together. At the battle of Hastings a portion of the Saxon soldiers were armed with stone. The Germans used stone hammers in the 10th century, at the same time that they had blades of the best Milan steel and bronze helmets. From a passage in the Iliad of Irish history—the "Tain Bo Cnailgne"—referring to the fight between Cuchullin and Ferdia, in which the darts which they cast at each other before resorting to the spear were described as flying through the air so thickly as to appear like bees on the wing, he inferred that the instrument now exhibited was probably the head of a battle-dart.

The next meeting will be on the 13th inst.

OGHAM INSCRIPTIONS.

THE study of that interesting class of lapidary inscriptions known as *Ogham Inscriptions*, which are found in many localities in the South of Ireland, has latterly received a great impetus through the labours of Dr. Samuel Ferguson, Deputy Keeper of the Record of Ireland, now one of the Vice-Presidents of the Royal Irish Academy. Hitherto the great obstacle to the promotion of the study of *Ogham Inscriptions* has been the want of anything like a collection of reliable copies of the inscriptions. The field of enquiry was invaded by some enthusiasts who contended themselves with obviously erroneous drawings of the inscriptions, and sacrificed the interest of exact truth and science to the indulgence of whimsical theories about pig-worship, cow-worship, and Priapian notions. Dr. Ferguson has already secured most accurate paper moulds of about forty of these inscribed stones, from which metal casts can be taken. The moulds are at present arranged in the Royal Irish Academy, where Dr. Ferguson also intends to deposit a series of casts, which will, in fact, serve as the foundation of an Ogham Museum, and place the study of this heretofore obscure class of inscriptions for the first time on a sound basis.—*Academy*.

SCHOOL OF ART, ROYAL DUBLIN SOCIETY.

THE prizes awarded to the pupils of the School of Art in connexion with the Royal Dublin Society were distributed last evening by the Lord Lieutenant in the Theatre of the Society, Kildare-street. It is gratifying to find that the pupils in the school are making considerable progress in the various branches of study pursued therein. It is a subject of legitimate pride that they have not only held their ground creditably in competition with those of schools in other parts of the empire, but have actually carried off a larger proportion of prizes for the works which they contributed. The Lord Lieutenant bore testimony to the success of the pupils, and gave an earnest proof of his practical interest in the School by his suggestions as to the establishment of a Museum of Ornamental Art. "We well know," said he, "the value of such a museum, for without it it is almost impossible to instruct pupils, or to stimulate a love of art among the people. While I acknowledge that we do want a museum of that sort in Dublin, I must not pass over some gains that have been made during the last two years in regard to art in Dublin. I believe that the Royal Irish Academy have

made considerable improvements to enable the public to see the magnificent collection that they have of the ancient works of Irish art—works of art that I believe are quite unrivalled in any part of England or Scotland. At the national Gallery some very important works of ancient masters have been added. A collection of works of the ancient masters has been got together which alone, I think, ought to have an important influence on art in this country. I must also allude to an attempt which has been recently made, which unfortunately has not been successful, but for which I hope success on future occasions—the attempt to get together a collection of portraits connected with Irish history.”

The following are extracts from the report of Committee read by Col. Adamson:—

“The steady progression that has characterised the operation of our Art School ranks it among the best in the United Kingdom. The general excellence apparent in works of all stages, evidences judicious and skilful instruction of the highest order, having for its aim the complete realisation of natural forms and effects. The total number of students who have attended during the year, ending July 31st, has been 594, showing an increase of 59 over the past year. The total number attending for the year ending 31st December numbers 616, showing an increase of 78. Of the 594 students attending during the year, ending the 31st July, 286 were males, and 308 females. The attendance of artisans has been 496, of which 272 were males and 224 females. The receipt in fees amounted to £524 4s. 7d. The greatest attendance of students took place in February, and was smallest in April. The average daily attendance amounted to 120. The annual local examinations of the second grade took place on the evenings of the 10th and 11th of March, when 177 students presented themselves, out of which number, 99 students, consisting of 53 males and 46 females, succeeded in passing examinations in 159 papers; having for subject—free-hand drawing, model drawing, perspective, and practical geometry. On the 9th day of April the works in the various stages of art instruction were forwarded to London, such works being divided into two sections—the elementary and advanced. Those forwarded by the Dublin schools consisted of 49 works by 31 students in the elementary section, and 130 works by 36 students in the advanced section. In addition to which 246 ordinary class drawings, consisting of outline of figure, ornament, models, geometry, perspective, projection, &c., were forwarded, making a total of 392 works executed by 200 students. To the drawings of the elementary section, competing for “third grade prizes,” 31 awards were made to 29 students, being an increase of 9 over the number awarded last year in the corresponding competition. To the advanced works alone, eligible to enter into the National Competition, 16 awards to 13 students were made, being a greater number than have, upon any previous occasion, been gained by this school, notwithstanding its very marked success in former years.

“At the recent exhibition of students’ works in the School of Art, open from the 26th of December, 1870, to the 6th of January, 1871, the number of visitors 5,932. At the conversazione of the Royal Dublin Society, on the evening of the 1st of March last, the works executed by our students in drawing, painting, and modelling were arranged in the library, and constituted a most interesting feature on that occasion. In alluding to the great difference existing between this metropolitan school and that of Edinburgh, which latter, owing to a special arrangement, possesses ample funds, whilst this important school, the leading art institution of Ireland, is dependent upon varying results, together with such aid as the Royal Dublin Society is enabled to extend to it. Under these circumstances, we cannot refrain from expressing our regret that, in the absence of any parliamentary grant, we are unable to extend our operations. In again, this year, referring to the desirability of establishing a Museum of Ornamental Art, in connection with the schools of this society, we are, considering the difficulty and risks at present attendant upon obtaining those examples of Art necessary, led to an increased conviction of its urgent necessity. By the addition of such a museum to our school, having for its object the promotion of Art in all its various branches in this country, and capable of aiding in a just comprehension of its contents, Art would be more fully brought to bear upon the wants and requirements of every-day life, and would tend to awaken more generally a taste for refined treatment in every kind of industry to which Art is applicable.”

STRANGE FACT!

FOR putting in the foundations for the new Law Courts, London, the highest tender is

£68,347, and the lowest £36,755! Both parties (Messrs. Gammon and Son, and Dove, Brothers) being “known and established,” it is to be supposed that the lowest will be accepted. A saving of nearly £32,000 will be effected by taking in the “Doves”!!

INCREASE OF GIN PALACES—A RECENT CONSTRUCTION.

[COMMUNICATED.]

WHATEVER may be advanced in favour of teetotalism and abstinence by the advocates of pure cold water potations (and with their convictions it is not our place to intermeddle), certain it is that our modern metropolitan architecture has largely benefited by the immense increase, during the last decade or so, of handsomely appointed and ornate structures in which “King Alcohol” holds sway. And to those who remember what Dublin was in the olden time, when the “native” manufacture was not one-half its present cost—and consequently more attainable,—vended in ill-fashioned “shebeens” with forbidding exteriors compared with what it is at present, the contrast cannot fail to be striking. Therefore, eschewing the philosophy of the trade question, and regarding the progress from an exclusively artistic point of view, we experience much pleasure in recording every acquisition to the architectural appearance of our streets and thoroughfares, not the least remarkable of which is the “recent construction” on the North Strand-road, leading to Clontarf, where the demands of a rapidly-improving neighbourhood have stimulated the enterprise of a well-to-do and old-established resident to the investment of some of the fruits of honest industry in the erection of a more suitable and ornamental concern than that previously occupied for his business. With these preliminaries we may introduce directly to the notice of our readers the “gin palace” just completed for Mr John Sane, merchant, a short distance beyond the North Strand Church, and at the junction of Annesley-place with the main road to Clontarf, from the designs of Messrs. Lanauze and Stirling, architects; Mr John Casey, of Great Britain-street, being the builder. The site—within a stone’s throw of Mr Sane’s former establishment, which, we understand, is to be retained for another department of his trade—has been happily selected, and a licence was granted therefor in an exceptionally complimentary manner by the Recorder (who is well known to be averse to new licences) on the recommendation of the neighbouring residents. Frontages of about 60 ft. total by a height of some 40 ft. are presented by the structure in question, which on the ground floor displays externally two public and one private entrance doorways; spacious and handsomely ornamented plate-glass windows, with intervening panelled and marble painted brick and cement piers and entablature, and a superstructure of red brick showing cement architraves, window-dressings, belting-courses, and an effective crowning cornice and parapet with a bevelled-off angle, surmounted by an elevated feature with a panelled inscription of the date 1871 and monogram ‘J. S.’ The internal arrangements comprise a very handsomely-fitted bar with marble-topped counter, silvered glass wall decorations, plate-glass shelvings, eutabulated and architraved doorways leading to hall and upper portion of the premises; mediævaly-designed gaseliers and window standards, &c., together with a bagatelle-room adjoining the bar. On the first floor is a spacious billiard-room, with the usual adjuncts, besides other apartments throughout for the proprietor and his assistants. Altogether the work is a creditable one alike to the architects, who displayed both taste and skill in producing effect and making the most of a rather awkwardly-shaped site; and to the builder for the manner in which the contract has been fulfilled. The plate-glass, decorative and otherwise, was supplied by Mr W. H. Harris, of Middle Abbey-street; the gaseliers, &c., by Mr Mooney, of Lower Ormond-quay; the marble counter by Mr William Butler, of Lower Gloucester-street.

MISCELLANEOUS.

ECONOMY OF FUEL.—The necessity for economising fuel appears to be forcing itself upon the attention of our engineers. The results already obtained are remarkable. Mr Siemens proposed, a few years since, to convert all the coal into gas and vapour—to combine this mixture with equivalents of atmospheric air in the combustion chamber. The heat obtained by this was enormous, and as the arrangement included a regenerative system, but little of this heat was wasted. A large number of those gas-furnaces are now in active operation in this country for melting steel, puddling iron, for glass-making, &c., and the saving of fuel is variously stated to be from 20 to nearly 50 per cent. Millions of tons of small coal are wasted annually in and at our collieries. For some time Mr Crompton has had a furnace in action at Woolwich, and another at the Bowling Ironworks, in Yorkshire, in which powdered coal only is used. This powdered coal is blown into the furnace, with exactly the quantity of air which is required to effect the combustion of the coal. The effect is surprising—a mass of flame of the highest temperature fills the furnace, and does its work, and no smoke whatever is seen to issue from the chimney. Thus the utilization of all the small coal is promised, great economy is expected, and the absence of smoke is secured.—*Athenæum*.

THE OVER DARWEN INDUSTRIAL CO-OPERATIVE SOCIETY, LIMITED.—On the 17th inst., the fourth quarterly general meeting of the members of the above society was held in the Co-operative Hall. There was a good attendance of members; Mr Daniel Whewell, president of the society, in the chair. After a few opening remarks on the object for which they were assembled together, he called upon the secretary to read the report, which stated that the committee are especially gratified to note the large increase in members, capital, and trade—three unmistakable evidences of the successes of a society. The present number of members amounts to 1,909, or an increase of 97 when compared with the previous quarter. The share capital (including interest due) amounts to £25,405 11s. 3d., being £2,521 12s. 6d. in excess of the quarter previous. The total sales for the quarter of 13 weeks amount to £16,682 17s. 4d; being an increase of no less a sum than £1,115 12s. 2½d. when compared with the previous quarter of 14 weeks, or an increase of £3,487 4s. 1½d. on comparison with the corresponding quarter of last year. The net profit for the quarter, after allowing £295 19s. 1½d. for interest, £108 14s. 9d. for depreciation of buildings, fixtures, &c., and paying all other current expenses, amounts to £1,446 5s. 11d., £20 7s. 11d. of which has been paid to non-members. The balance we purpose disposing of in the following manner, viz., to pay a dividend of 1s. 8d. per pound on members’ purchases, 1s. 6d. per pound to those non-members who retained their cheques until the end of the quarter, to add £66 9s. 11d. to the guarantee fund, £23 8s. 5d. to the reserve fund, to allow £36 13s. 6d. for educational purposes, and to carry the balance undivided (£33 14s. 1d.) to next quarter. After a few questions had been asked and answered, the report as read was then adopted. The following officers were then elected, vice those who retire by rotation:—President, Mr. Richard Hoggate; treasurer, Mr. Wm. Taylor (re-elected); directors, Messrs. Thomas Shortock, Wm. Lighthown, and Benjamin Fish (re-elected); auditors, Messrs. John S. Webb and James Aspden. A grant of £5 was then voted to John Calvert, who sustained injuries during the erection of Bolton-road new branch stores. A cordial vote of thanks to the chairman and the retiring officers terminated the proceedings.

A GOOD WATCH AT A MODERATE PRICE.—“The stranger in walking through the City of London must be astonished to see so many establishments whose windows are filled with watches and jewellery of the most costly description. Among these there is one of great celebrity for the beauty and excellence of its productions—we mean the establishment of Mr. J. W. Benson, watch manufacturer, of Ludgate-hill and Old Bond-street. As a good watch is admitted on all sides to be indispensable to the man of business, we have great pleasure in pointing out a watch manufactory where our friends can purchase the article without paying an exorbitant price.”—*Daily Telegraph*. For prices of watches, clocks, jewellery, chains, &c., see the illustrated pamphlets which are sent post-paid for 2 stamps.

NOTICE.

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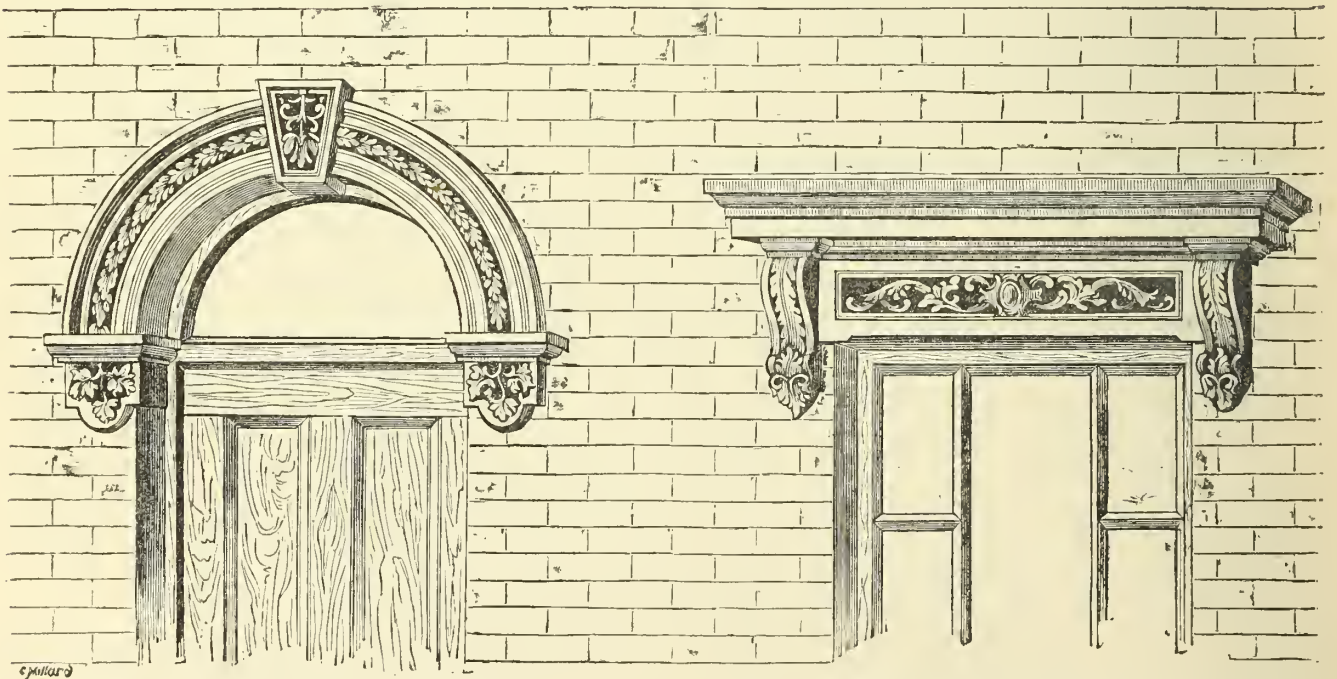
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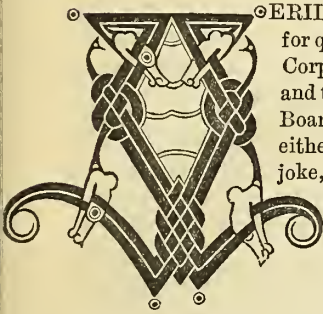
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VOL. XIII.—No. 268.

Thoughts upon Passing Events.



ERILY this is an age for quizzing; and if the Corporation of Dublin and the Port and Docks Board are not now either continuing a joke, or endeavouring to test the patience of the citizens of Dublin, we are no prophets. We remember in the days of George the Fourth a bridge being built over the Liffey, and a doggerel being written alluding thereto, from which we quote the following lines:—

"A bridge! a bridge! the very thing—
An arch design to quiz the poor old king."

The bridge was built and the king quizzed, and—however George the Fourth may have been flattered in being the cause of superseding a line of ferry-boats, and at the time supplying a pressing want—we feel convinced our mercantile and civic population would be well pleased that the quiz with regard to Carlisle Bridge would be realized in some such arch manner.

Poor Kelly, the author of the foregoing lines, was connected with our craft; he lived in Peter-street, next the Molyneux Asylum, and practised as an architect and measurer. He had much literary ability, and, imagining himself slighted in some way, he published a pamphlet ridiculing every architectural work at that period in progress in Dublin. He was particularly severe upon the late George Papworth (who designed the bridge), than whom a more kindly and more estimable disposition never lived. Kelly insinuated in this case wrongfully that it had been made a job of. But literary ability and architectural pursuits seldom harmonize well together, and he was not as successful as he might have been. He is now dead many years, and we will tread lightly upon his ashes; had he fallen upon our time he would have had ample scope for his satirical pen. But to proceed.

Everyone remembers a great flourish of trumpets ushering in an invitation, *par excellence*, to the votaries of the twin sister of the arts throughout the United Kingdom for designs for a new Carlisle Bridge. The shades of Gandon and of Semple looked down approvingly, and beckoned on and on many an aspirant to historical and architectural fame. All now know the results. Was this for the purpose of perpetrating a joke at an enormous expense to the unfortunate competitors, and upon the citizens generally? It really looks like it, when we see now that a part of the balustrading—thrown down by a casualty (which we are surprised had not long since occurred)—is in process of restoration to the rickety condition of the remainder, and even a hint thrown out that it would be an easy matter to form a solid parapet to remove any risk of danger.

We have been led into these remarks by the proceedings at the late quarterly meeting of the Municipal Council, when the Town Clerk read a letter from the secretary of the

Port and Docks Board, enclosing the following report from the engineer to that body:—

"Dublin, January 26, 1871.

"SIR,—In compliance with the Board's instructions, I beg to report as follows on the condition of Carlisle Bridge:—I find no alteration in the arches, piers, or abutments since I examined the structure in conjunction with the City Engineer last July, at which time I reported that they were in good order. The knocking down of a portion of the parapet has not affected the stability of the main structure; and, if the collision had not occurred, there is no reason for supposing that the parapet would not have stood as well as it has done for many years. The uninjured part is secure for its legitimate purpose of a fence, and is adequate to resist the pressure of a crowd keeping to the footpaths, but I do not consider a balustrade parapet fitted to support an excited crowd of people swarming over the top, nor is it likely that the eminent architect who designed the bridge contemplated such an abuse. I understand, however, that this occurred on a recent occasion, and it would be an easy matter to model the design so as to form a solid parapet about 4 feet high, and thus remove any risk of danger. The expense would be about £360.—I am, sir, your obedient servant,

B. B. STONEY."

That the throwing down of a portion of the parapet has not affected the stability of the main structure, does not require much engineering ingenuity to decide. The piers and arches of Gandon's bridge are now fully as secure as they were upon the day the centre-rings were struck, and, with the exception of a slight settlement, which in no way affects their durability, they are calculated to last for ages. But we must take exception to the statement that "there is no reason for supposing that the parapet would not have stood as well as it has done for many years." This, of course, is an allusion to the collision, meaning thereby—but for the accident it would have lasted for an indefinite period.

The most unpractised eye cannot fail to remark that both lines of parapet and balustrading are considerably out of plumb leaning towards the river; the professional eye must pronounce them unsafe, and, in their present condition, totally unable to resist the pressure of a crowd, much less to bear a mob clambering upon the cornice of the balustrade, which occurs upon every sight-seeing occasion, and which we never witness but in fear and trembling, as a trifling additional weight upon the outer edge of the cornice is more than likely to throw the entire from its centre of gravity into the bed of the river; and however patched up the restoration may be upon the "penny wise and pound foolish" system of economy, we are distinctly of opinion the existing portions of the parapets are dangerous. There is no doubt but that for the collision of Bennet's ship the parapet would have stood possibly for a few years, or at least until some unequal pressure would have produced a calamity which it is frightful to contemplate, and which might be appalling in its results; but Bennet's ship, although it happened to be the immediate, was not the real, cause of the disaster. The present insecure state of the parapets arises from the total inadequacy of the bridge for the increasing traffic of the city, which, a few years ago, the Corporation tried to remedy, but in attempting which they were the primary cause of the casualty which the Bennet collision produced; had the parapet been in a safe state the push of the bowsprit of a coasting schooner could scarcely have eventuated in such serious consequences. It will be remembered that, in order to lessen the steep gradient of the road and footways, the Corporation, at the time referred to, reduced some 12 to 14 inches of the road metalling from the crown of the centre arch gradually sloping to meet the intersecting streets.

Passing along the footways this reduction is quite apparent, and is now covered by an extra plinth in Portland cement. It must be apparent to all, that in removing so much of the lateral support derived from the footways, an irremediable evil was produced in the existing parapets. If the bridge were wide enough for traffic the cure is obvious, either by rebuilding and reducing their present height, or altogether building them in the new at a lower level; but neither of these expedients can possibly satisfy the public mind.

We have frequently alluded to this subject before, and would heartily rejoice in heralding the prospect of an entirely new bridge, as architectural and as ornate as it should be, no matter whether it was in seriousness or otherwise the Corporation may have been acting when inviting competition, in charity we will presume that at the time they were in ignorance of the fact that the decision rested not with them; but we scarcely think the present condition of Dublin is equal to such a task, and upon this ground we are opposed to it. In days of old, when a national Parliament, acquainted with national wants, held its sittings in College-green, there would have been no difficulty whatever in obtaining a grant for a purpose like this. We have frequently cited numerous examples thereof, but the times are now changed, and until we have a restoration of native rule we must dismiss such ideas, and content ourselves with less magnificent projects than our predecessors indulged in, while we endeavour to utilize the little resources we have left as far as they may be made available.

We have it now officially announced that the decision in this matter rests solely with the Port and Docks Board, and however callously indifferent this body may be to the increase of taxation upon an already overburdened city, or whether they are now really serious in announcing they have instructed their engineer to prepare plans and estimates for a new bridge, we are not now going to enquire; but of this much we are convinced, all classes would be far better satisfied by a sufficient widening of the present bridge, and more particularly as the opinions of so many eminent and practical men have been pronounced upon the security of the main structure.

In our last number we published a paper read by Mr. Geoghegan, at a late evening meeting of the Royal Dublin Society, explaining his project for lowering and widening the present bridge; and although it may appear invidious in us to express an opinion upon the merits of the plans of one particular member of the profession—as all are alike our supporters,—we express our opinions only as appears to us most conducive to the public benefit without fear or affection for any, we therefore cannot but recommend that an endeavour should be made to realize a plan which, while it is truly artistic, is so feasible and attended with comparatively so small a cost.

In the face of a proposed wanton expenditure, whether it is intended or not, in sober, solemn earnestness and reality we advise that a public meeting be convened, headed by our leading merchants and owners of property interested in the welfare and convenience of the city, which would easily initiate a movement, and produce a vigorous effort upon the part of the ratepayers, and eventually save them (that is if the Port and Docks Board are serious) an amount of taxation they have

little idea of, while by adopting a smaller expenditure they will no longer be obliged to tolerate the inconveniences attached to the totally inadequate approach to one of the finest thoroughfares in Europe.

BELFAST GOVERNMENT SCHOOL OF ART.

WE are happy to state that, although this school has not been brought before the public as prominently as it might have been, it has been quietly progressing, and is now fairly established with every prospect of permanence and success. The premises taken from the Royal Academical Institution in College-square have been completely remodelled, and are now admirably fitted for a first-class school, with ample class-rooms, well lighted, effectively heated and ventilated, and provided with all essential fittings, furniture, casts, examples, library, and every other school requisite. An able master has been appointed, whose zeal as an artist, and power as a teacher leaves nothing to be desired; and it is intended further to secure the services of assistant masters for district branches as the school may require them from time to time.

The committee of management (including the first art patrons in Belfast), with its influential chairman, Dr. Thomson, and efficient secretary, Mr. Shepherd, manifest an increasing interest in the school, and are not content with present success, but aim at further progress, and hope to make the Belfast School of Art one of the first in the kingdom, and thereby recover what has been lost by the collapse of the old School of Design.

The labours of the committee have been seconded by the public, who have responded liberally, as a Belfast public always do to appeals in support of projects of general utility or social improvement—one subscriber undertaking to pay the rent of the premises, amounting to £100 per annum. Above all, the persons for whose advantage the school is mainly intended have shown their appreciation by enrolling themselves as students, and already nearly all the classes are full. The evening classes for mechanics is crowded, as may be expected in Belfast. The afternoon classes for school children are well attended, and the morning classes for ladies is extensively patronised, and so far there is everything indicative of the very best results. We trust, however, the committee will not rest here. With the effective aid granted by the Department of Science and Art, with the means supplied by local contributions, with an efficient staff of officers, and all the appliances for successful teaching, there may be a tendency on the part of the committee to relax their efforts, and consequently a danger of allowing the school to degenerate into a mere mechanics' class, or an auxiliary to the Academical Institution, and then its value for the purposes of art education would be lost. This should not be. The permanence of the school and the extension of its usefulness must be the aim of the committee, and both can only be maintained by an efficient, earnest, and continued local organisation, directed not only to the encouragement of the teacher and his pupils at their studies, but also towards the spread of artistic taste, and the cultivation of a proper appreciation of artistic works among those who never think of using the pencil or the chisel, by a liberal use of appropriate lectures, exhibitions, &c.; and in this

way the committee can direct the attention of the public to art and artists, and enforce the necessity for their encouragement. The realization of this issue will very much depend upon the constitution of the committee itself and the zeal of its individual members; and, above all, its chairman should not only have a knowledge of and interest in art for its own sake, but should possess considerable administrative ability, and, being free from selfish ends, be capable of securing the entire confidence of the public. Dr. Thomson, the present chairman, has fulfilled those conditions, but he must resign on leaving the Queen's College for Edinburgh, and the committee must elect his successor. There can be no difficulty, however, in securing the services of another efficient chairman, when there are available on the committee at present such men as Sir Charles Lanyon and others, artists themselves, good business men, thoroughly acquainted with all local requirements, and with a personal experience of the causes which led to the total failure of the old School of Design.

We earnestly wish the school every success, and shall be grievously disappointed if Belfast does not turn out, as it has done before, men who will not only do credit to the "Athens of the North," but give fresh evidence of our natural talent.

NEW PREMISES FOR THE ENGLISH AND SCOTTISH LAW LIFE ASSURANCE ASSOCIATION.

WITH this number of the IRISH BUILDER we give, as one of our illustrations, an elevation of the premises lately erected in Lower Sackville-street for the above company. The style adopted is Italian, and the material employed Portland stone. Messrs. Cockburn and Son were the contractors, the carving being executed by Mr. C. W. Harrison. Mr. William Stirling, architect.

FACADE AT DELFT.

HOLLAND does not contain many buildings like this. The style corresponds with the sixteenth century English. The building is situated on the quay at Delft, and is one of two façades, which, taken together, form a rich and imposing elevation.

KITCHEN BOILER EXPLOSIONS.

THE recent accidents with kitchen boilers have given rise to a large amount of discussion on their construction, and the possibility of making them tolerably safe. As might be expected, very contradictory opinions have been enunciated, for while one writer says that any kind of kitchen boiler can be made perfectly secure from explosion, at an expenditure of 20s. or 25s., others have pointed out that both safety-valves and fusible plugs are equally useless.

As ordinarily fitted, these boilers consist of a strong wrought-iron shell, capable of bearing a very high pressure. To this shell are attached two pipes, the one to convey the water to the various parts of the house at which it is required, the other to keep the boiler constantly supplied. This latter is connected with a cistern, placed at a height sufficient to force the water to the level desired, and of course exercises an enormous

pressure on the boiler. It is obvious that if both these pipes become blocked steam will be generated, and unless there is some outlet provided, an explosion must ensue.

To avoid an accident of this kind, it has been proposed to fix an upcast pipe into the top of the boiler, carrying it up inside the chimney to a height above the level of the cistern. It will be seen that no security whatever is obtained by this; for if the pipe conveying the hot water over the house is liable to become frozen, so may the upcast pipe. It has been also recommended to fit the boiler with a safety-valve; but to this a correspondent who claims to have had forty years' practical experience replies: "the pipes from the boiler being carried into the upper rooms of a house, any valve fixed on the boiler must be weighted sufficiently to resist the head of water above it (frequently in large houses as much as 40lb. on the square inch), and the weight on the valve must have some appreciable excess of resisting power beyond this, otherwise it would be constantly opening and allowing the water to escape, and thus flood the kitchen. If the valve is heavy enough to resist the weight of water above it, then, unless it is constantly opened by hand every few days, it is certain to stick fast, by reason of the incrustation which forms round it from the boiling water, and in that state no ordinary power will cause it to open, and the valve, of course, becomes utterly useless. Every time, therefore, that you try the lifting power of the valve you partially flood your kitchen, or if you leave it alone, it becomes set fast in the course of a few days and is utterly useless."

The employment of a fusible plug screwed into the top of the boiler has been suggested; but this is open to two objections. Fusible plugs are made to melt at various temperatures from 212° upwards; and when they melt, the kitchen is, of course, flooded with water, an event likely to occur very frequently, for if the plug is to act as a real safeguard, it must be made to soften at a temperature very little higher than that of boiling water, when the enormous pressure will blow it out. If one softening at a more elevated degree of heat is used, however, it becomes a question whether it would melt in time to prevent an explosion.

It would seem, then, that the only preventive of these lamentable and regularly recurring accidents is personal vigilance and thorough examination of the apparatus before lighting the fire, particularly in the winter time. But we cannot conceive that the disadvantages of the safety-valve are sufficiently great as to render it useless; for granting that it is liable to stick fast, and that, as boilers are constructed at present, it would be impossible to examine it without the water being forced out, it would surely be better to have an occasional flooding of the kitchen than to run the risk of killing human beings by a terrific explosion.

But the fact is it is quite possible to so arrange the apparatus as to enable the valve to be examined and cleaned every morning. By placing a tap in each pipe the water could be shut off, when, if a small quantity is run out of the boiler, the valve could easily be cleaned without fear of an overflow. These taps are really necessary, independently of their use in connection with the safety-valve; for without them more damage might be done by the bursting of a pipe in one of the upper rooms than would be caused by the flooding of the kitchen, as it would be equally impossible to stop the supply of water.

But whether boilers are left in their present dangerous condition, or are fitted with safety-valves or other means of obtaining security, they must be entrusted to the care of persons who understand their management and who do not shirk their duty.—*English Mechanic.*

REVELATIONS OF THE TRUCK SYSTEM.*

We may expect shortly some more disclosures concerning the working of this system in the centres and outposts of our several industries; but before we are favoured with a report by the Commission now engaged upon the subject, we will briefly touch upon the evil as we now come in contact with it in many parts of the empire. We have witnessed the serious consequences resulting from its working, and we can, in anticipation of other evidence, join in its condemnation, while we can admit that it is impossible to work the truck system in a modified form, in a humane and philanthropic way, and make it confer advantages upon working men and women, particularly in localities distant from towns. We must assert this has not been done. The men and families who were perforce compelled to deal at these "tommy-shops" were obliged to pay often, in fact always, a higher price for the necessities they wanted than these could be procured at in free shops; and generally the Tommy-shop and the truck store vended the worst description of goods. We have known instances, in our experience, where no money at all was paid for labour, but provisions, groceries, and articles of clothing had to be taken in lieu. The workman, of course, in this case, was often obliged to take more things than he actually wanted. To get rid of his surplus articles he was obliged to hawk them about, and resell them at a loss, or make an exchange in the primitive fashion—barter one article for another; the consequence was, that the workers under the truck system were always in a miserable condition. They never could procure what they required, the food was bad, and the articles of wear were often worthless. Looking back a quarter of a century, we can see the truck system at full work in various ways and in various places. The contractors or sub-contractors of many of our early lines of railway in the three kingdoms, contrived to add to their gains by establishing "tommy-shops" in different towns on the lines of their contract. We have visited many of these extemporised stores, which, although they were not licensed to sell malt liquors, yet contrived to have it for those who could hold their tongue. Tobacco, the other great necessity, could be had in abundance, and even other contraband things. The navy being a bird of passage, with no settled home, cared little so long as he had constant work and a little surplus in cash for a drinking bout on Saturday night and Sunday.

The "tommy-shop" supplied him with tea and sugar, tobacco and bacon, on "tick," and he was certain that his job would last until the works were finished, without a discharge. Independent of the railways, the "tommy-shop" and the truck system flourished in connexion with the iron-mines, collieries, weavers, glove-makers, lace-makers, cloth-makers, mill-owners of different descriptions, and even among the agricultural labours in the south and south-west of England. The same principle that induced large contractors or their agents, or large manufacturers and their overseers, to establish a truck system in eatables and drinkables, also actuated them to build dwellings for their workpeople, and compel them to live in them. In the great majority of the mining districts of England and Scotland there are villages almost exclusively inhabited by miners and colliers. If there be an empty house, the fresh hands that may be taken on are expected to remove at once to it. In some instances we must admit that the houses built by the mining proprietors are more fit for habitation than many which are to be found elsewhere, but the evil of compulsion is not the less to be condemned. Any large employer, or firm of employers, who like, are at perfect liberty to speculate upon the wants of their workmen, and in a legitimate manner to build homes for their well-being, or supply food for their convenience,—provided that it is optional

with the workmen to do as they please in respect to their patronage. We have, however, in our experience, been a witness to acts not only of coercion but of tyranny in this matter. The system of paying tradesmen and mechanics by monthly and fortnightly settlements is fraught with serious evil, and it is a cruel hardship when this system is enforced with agricultural labourers. Fortnightly payments are quite common; and even where there is no truck system in connexion, a fortnightly payment to workmen is productive in most cases of bad results. When the money reaches the wife for house-keeping duties, it will be found that the half of it is already owing, and that the pawnshop will have to be more than once visited to square matters before the next pay-day.

There are many large manufacturers and mining firms who will no doubt aver that the truck system is no advantage to them. If it be of no advantage, in either saving the workman's time or making double profit out of his labour, why has it been so generally adopted over the country? It is not the manufacturer or proprietor in chief in some instances who benefits exclusively by the truck system, but his agents, overseers, and underlings, who are supposed to manage the business for him, but who very cunningly contrive to work the profit and percentages for themselves.

Where workmen are single men the evil of the truck system is not so widespread in its effects as in the case of workmen with families, but it is all the same to the managers and overseers, who have the power of employing or discharging.

While upon the subject, we will just remind our readers and the public that there are many kinds of the "truck system" rife amongst us, and the offshoots of the parent tree are widely ramified through society. The present Commission sitting upon the matter might with advantage widen their labours, and when ready give the public what they expect—an exhaustive report upon the whole subject and its surroundings.

It will no doubt surprise many people to be informed that a species of truck system exists in many of our city workshops in the building and other trades; but the system is not confined to London alone: it exists in a similar way in Glasgow, Edinburgh and Dublin,—indeed, it is general over the kingdom. We will just show how the little dishonest scheme works, and how the thin edge of the wedge is driven in. Many of the overseers, managers, and foremen of various firms have public houses, groceries, and provision stores. Where they have not the ownership, their relations have; so to the new hands who may be taken on it is softly insinuated by a friend that he is expected to patronize Mr. So-and-so. We have known this *sub rosa* species of truck system to be extensively worked in many parts of the country, and in the city too. We have known instances of workmen drinking half of their hard earnings in beer-shops and public-houses, kept by foremen and overseers, and this practice many of them had to continue for the purpose of keeping themselves in employment. All men of course would not stoop to this debasing practice. The inferior workman will be found to do it, and, in some instances, the good workman who is unfortunately addicted to drink. Thus we have had workmanship because we have debased foremen and overseers. And this is the truck system, under a modification, profited in by the employer's agents instead of the employer himself.

Reverting to the original truck or "tommy-shop" system, we will add that we have known food unfit for use to be often sold in these places, and always a higher price charged than it could be had for elsewhere. The wife and children of the workman were, however, obliged to take what was in the store, for there was no choice left to them.

The canteen system in all our military barracks and regimental depôts in different towns and cities is little better than the truck system. These soldiers' "canteens" are rented

or leased by the barrack-master to the highest bidder, and every article that may be had in an ordinary public-house, grocer's and provision shops combined, may be purchased here. It is intended for the use of the soldiers, but civilians and outsiders, who, as workmen, assistants, &c., have business in connexion, can avail themselves of the privileges. The articles here are supposed to be sold on a cheaper scale to the soldiers than outside, but what they save in pence they generally gain in poison. The drinks are bad, and the food is inferior. There is a distinction made, however, by the canteen landlord; he will not sell a bad article if he can to an officer's servant. The wall is for the weaker still, as the old proverb has it, and it is the privates who have to suffer.

Soldiers' canteens should get an overhauling, and where the old system on which they were carried is still in vogue it should be exposed. It is a matter that calls for inquiry. It embraces a species of both truck and traffic in its management not very creditable.

The rise and growth of the co-operative store system in the north of England has nearly annihilated the old Tommy-shop. The Rochdale experiment being a success, other ventures and successes follow. Here in London we have the Civil Service Co-operative Store, and a seemingly well and thriving concern it looks. There is no end to the working of the system, but, like every other great change, there are dire evils in the state of transition. The retail trader, if the co-operative system spreads much more, will certainly feel a severe pinch. Tyranny, coercion, and injustice belong to the truck system in less or greater degrees, and as hardships belonging to the Tommy-shop produced the co-operative store, and gave the workman purchaser a share in the profits resulting from his outlay, so the overcharge made by the retail dealers for articles which are undoubtedly adulterated will gradually drive other classes in London besides the Civil Service into co-operation for mutual protection and advantage.

Workmen should be paid weekly, and not in public-houses; and all their payments should be the same as with the classes above them,—in money. If they make bad use of it, they are themselves to blame. They should be at liberty to choose their own residences, and purchase their daily or weekly necessities where they think fit. It is true philanthropy to give them better homes, and to give them facilities for obtaining better goods, and at a cheaper rate, than their own individual exertions can procure; but it is neither philanthropy nor justice, but the very reverse, to make it obligatory upon them to live wherever a bad landlord may desire, and to make them purchase where and what his agent, acting under him, wills.

We anticipate that the Truck Commissioners will supply the public with statistics, gathered in the north, south, east, and west of the country, Wales included. The figures ought to show the immense sums that are paid, or should be paid, in earnings; the amount of capital represented by "certificates," which pass current as legal tenders in some places; and the amount of probable double profits that find their way back again into the employer's business. In a word, the Commissioners' Report should show us the truck system as it exists, with its advantages, if it possesses any, and with all its acknowledged and obvious defects.

INSTITUTION OF CIVIL ENGINEERS.

The monthly meeting of above body was held on Wednesday evening in the Museum Building, Trinity College. The chair was occupied by B. B. Stoney, Esq., Engineer to the Port and Docks Board. Two papers were read by Mr. J. Thompson, member; the first was on "The Jet-Pump with Intermittent Reservoir for Drainage of Land." The author exhibited a beautiful working model of the pump, and several diagrams. A lengthened discussion succeeded the reading of this paper. The second was on "The V Gauge Notch for the Gauging of Rivers and Streams."

* From the Builder.

RELATIONS OF GEOLOGY TO
ARCHITECTURE.

(Concluded from page 29.)

It is exceedingly important that the exact physical conditions of the formation of the alluvial beds of rivers should be clearly understood by practical men. It is by no means the case that the present bed of a river is the only part where loose and uncertain material exists, nor is it at all necessary to assume any change of level, still less any great convulsion of nature, to account for the phenomena. They may be studied in every valley where the stream is left to take its natural course; but in England, and in many other countries where land is valuable and cultivation carried on extensively, the rivers are never left to themselves, and therefore the changes that explain and illustrate these conditions are not perceived. In a natural state a river rarely follows the same course through its valley many seasons in succession. Either it chokes up its old bed and steps aside to form a new one, or, owing to a torrent, it cuts itself a new course altogether and leaves the old bed dry. All our river beds have been formed in this way. It is not that the quantity of water brought down varies very much, but that the circumstances change, and new channels are cut, the deposits of course shifting. The whole width of the valley through which a river runs is of the same nature, and the deposits are due to the same cause. Hence the variety in the foundations in different parts of a valley far removed from the present course of the stream, which has not perhaps been allowed to shift for many centuries.

But in addition to ordinary alluvial bottoms resting on clay, limestone, or sandstone, as the case may be, and consisting of the usual admixture of sands, clays, and river gravels, are the instances in which the river valley has been ploughed out by the action of ice, and has received large deposits of boulders, boulder clay, and the usual accompaniments of fine and coarse sand and gravel. Gravels are frequently found at levels very much above the bottom of the valley, and they not unfrequently even cap the hills through which the river is cut. The same kinds of gravel often occupy the valleys themselves.

Excellent as gravel is as a foundation when in sufficient quantity and uniform in texture, it can hardly be trusted unless its history be known. The gravels called diluvial are often comparatively free from loose sands and clays, and are then excellent for every purpose required by the architect or engineer. They are sound, well drained, healthy, and generally yield water at a small depth. But it is not so with the gravels occasionally found with boulder clay, nor with ordinary river gravels, and thus, as I have already pointed out, the history of gravel is an important inquiry when it is proposed to construct buildings upon it.

Natural drainage is very important in all large buildings. Without this, even if the foundations are sound, moisture will rise up by capillary action through almost every variety of stone and brick, and will in time deface the building and increase the action of weather on the surface. Certain rocks drain naturally, and are safe. Others may be drained with little difficulty, and may be made safe. Others, again, will tax the ingenuity and experience of the most accomplished architect, and will, after all, be only partially cured. There cannot be a doubt that in this latter, and also in the second case, the constructor would be greatly assisted by knowing the nature of the enemy he has to deal with, and this can only be done by a knowledge of rocks generally and of the local geology.

In speaking of the applications of geology I have avoided the mention of particular rocks as much as possible, because it is not so much the rock as its condition that affects the practical man. I have known granites porous and absorbent limestones compact, and non-absorbent sandstones offering every

possible variety in every respect, and even clays very different in different places. What is wanted is such a general acquaintance with the principles of stratification and the nature of rocks as shall enable the practical man to make the best use of the conditions he has to deal with. I cannot lay down rules that can be made use of without further trouble; I can only point out the key which will unlock the difficulty in each individual case, if it is applied properly and intelligently.

Water supply from springs either at or moderately near the surface is a very essential matter in the case of buildings intended as habitations removed to some distance from pure running water. But it is now well known that however pleasant clear spring water may be to the taste, it is capable of containing and does in certain cases contain injurious ingredients sufficient to render it a fatal poison. There can be no doubt that certain superficial deposits and certain rocks are liable to induce this state in the water, while others are not. It is evident that the causes of events of this kind should be known to the architect, and it is highly desirable that he should be acquainted with the theory of springs, at least of such as are likely to affect buildings. Absorbent gravels resting on non-absorbent rocks may be expected to introduce poison into water when the ground is liable to be covered with decomposing animal or vegetable matter, or with sewage, for the rain entering them cannot fail to carry in water loaded with as much of such impurities as it can contain. Such of them as are soluble in water will certainly therefore mix with it and render unwholesome all the water pumped from the bottom of such a deposit.

On the other hand, where water has a free exit from rocks, it is almost impossible that such injury can take place to any great extent. Land springs and artesian springs from basins are dangerous. Springs from hill sides or artesian springs reaching water tapped in its progress to an outlet are generally safe. How is it to be known what is the nature of the springs without some reference to the science of geology, and some knowledge of the laws of superposition of rocks?

The whole subject of the weathering of rocks deserves the careful study of all who have to deal with stone and brick. All material without exception is affected by exposure, but while some will remain almost unchanged, and even harden when left to the action of the air, other kinds will at once decompose and rot. It is not always the hardest that is the best. This is especially the case with flags or stones splitting with parallel faces. Many very good flagstones are formed by the exposure of quarried and squared blocks during one winter, and then in the following spring splitting the mass by wedges in the cracks indicated. If left longer they can no longer be split with advantage, and after a time it becomes impossible to split them at all. Something of this kind happens with all stones. After being quarried, stones are for some time in the state called green, and after exposure to a certain extent they are said to be seasoned. In the latter state they are regarded as fit for use, but after all it is doubtful without experience whether they will be permanently sound. It is evident that if we knew more of the history of stones we should be able to use them to better advantage.

The study of stones in the quarry, and a careful examination of the effects of weathering and disintegration by the action of rain and frost of the same stone in the immediate neighbourhood, whether naturally exposed or placed in buildings of any kind, combined with a knowledge of the chemical composition, the peculiarities of aggregation, and the natural history of the stone itself, and the beds with which it is associated, will very often suggest to the intelligent observer its probable weak points for the special service for which it is designed. There are accumulated stores of information of this kind that should be familiar to all who have to decide

on the selection of a stone, and it should be remembered that stone is, in the nature of things, an altered form of a very miscellaneous deposit, and that without especial care in selection and placing it is next to impossible to secure a large quantity of perfectly even quality.

You will observe that I have included a great variety of subjects as embraced within the very important subject of building sites, but I trust you will not think that I have done so without sufficient reason. I am well aware that in modern constructions beds of concrete play an important part in forming artificial foundations, and are much trusted to in keeping out damp and preventing unhealthy miasma. I wish to point out that however useful such an avoidance of the difficulty may be, it should not be trusted to implicitly, and I think it would be easy to show that there are cases where the danger and mischief would only be postponed for a time by such contrivance, and would reappear and act with full force when by irregular pressure on a bad and shifting subsoil the concrete becomes cracked and crushed long before the time has come when the building would begin to fail by reason of age and general wear.

I assume as entirely beyond discussion that in the exercise of his profession the architect desires only to do justice on the one hand to his own inventive genius, skill and reputation, on the other to the highest interests of his client. I have endeavoured to show that in order to do this he must inform himself concerning and be to some extent familiar with the principles and applications of the science of geology as now understood. He must from time to time call in the aid of this science to decide matters of vital importance, and he cannot do so properly without making them a subject of serious and special study. I have not entered into details, as they could hardly be fitly discussed in this place, but I have endeavoured to illustrate and explain the principles to which I think your attention as architects should be directed.

Since this memoir was in type, my attention has been directed by my friend Dr. Letheby to a pamphlet by Dr. Pettenkofer, in which attention is drawn to the great influence of subsoil and rock on certain diseases, especially cholera and typhus. Dr. Pettenkofer points out that in the case of Gibraltar and Malta, it was proved, by British statistical returns, that at a time when cholera was raging over a large area there were certain small localities that escaped. On investigation, it was found that whereas the subsoil to a great depth,—and in the case of Malta the rock—was eminently porous and permeable, the spots that escaped were situated on impermeable clays. There can be no doubt that the health of a town site is greatly influenced by the condition of the rock and soil on which it is built, and that generally a moderately porous soil, admitting of the removal of moisture by drainage, is conducive to health especially in a damp and comparatively cold climate like that of England, and also that with us, gravel and limestone, as subsoil and rock, are healthy as well as pleasant. But it is equally certain that where the underlying rock is deep and permeable, admitting of a considerable alteration of the level of the surface of permanent wetness—which is usually found to exist at some depth, however, under such circumstances, but which varies with the season—the result may be different, and it may require both knowledge and judgment to decide as to the relative values of sites, even with regard to water only. It is also true that wherever there is a great collection of human beings, living over a permeable soil and rock, the effect of the accumulation of refuse and sewage cannot but be felt in course of time. The water percolating from the surface will carry down organic matter, and thus in time it will inevitably make itself felt, by generating unhealthy and miasmatic vapours, occasionally reaching the surface. But there is another question to be considered, which in

warm and dry climates rises into great importance, and with regard to which the observations of Dr. Pettenkofer are very suggestive. All rocks are capable of absorbing, and therefore also of containing, a certain quantity of atmospheric air, either in its normal state, or replaced by other gases. No doubt a certain change in the constitution of the gases absorbed may take place, in consequence of the connection well known to take place in porous and spongy solids when mixed gases pass through them. The quantity of air or gases contained in all rocks must vary, and must be affected by changes of weather. During dry and hot weather, large quantities are given off, and during colder weather re-absorbed. In rocks, then, that contain much air, either in consequence of their great absorbing power or other laws, when there has been received into the body of the rock, by percolation from above, any quantity of organic matter, and this organic matter has become putrid, the gases given off during hot summer days are liable to become dangerous miasma, and when cholera and fever are prevalent are especially liable to incur infection. I cannot but attribute to this cause the extremely bad sanitary state of some districts in the Mediterranean, healthy enough so long as there is rain, but poisonous in the dry autumn, and in these cases I can easily understand that the intervention of even a small thin band of clay may be a source of safety, and the more so the nearer it is to the surface.

I need offer no apology in pointing out these facts and inferences in a memoir on the subject of building sites, and of which the application of geology to architecture is the professed subject. Sanitary considerations connected with and arising out of topographical and geological positions can never be dissociated from the practice of architecture, and I am sure you will agree with me that all knowledge that can help to a conclusion in such matters is not only desirable, but ought to be considered indispensable to the architect.

MOUNT VESUVIUS.

It is time I should give you a report of the antics of our mountain, and, beginning from the beginning, I will describe the movement, not so much from what I have been able to see as from the letters of Cozzolino and Guido. The eruption is of that intermittent character which indicates a long continuance—sometimes ceasing altogether, and a few hours after blazing out again; so that Prof. Palmieri regards it as a beginning of the end of all those shocks which have long agitated Europe and Italy especially. Vesuvius has been threatening for some time; but it was not before the night of the 12th inst. that anything serious occurred. About midnight a new crater was opened towards the summit of the mountain, from which issued a stream of lava, and flowed down the sides of the cone in the direction of the Atrio del Cavallo. The mountain was then, as it is now, covered with snow, and the lava made a terrible rent in the white mantle, presenting a remarkable spectacle. At the same time the great cone kept up its ancient reputation by throwing out large volumes of smoke, and its crater was full to the brim of lava. Two smaller cones meantime, within the crater, one being new, maintained a discharge of stones. The shocks were sensibly felt in all the houses in the neighbourhood, which trembled with the vibrations. On the night of the 13th a current of lava flowed into the Atrio del Cavallo, whilst two other currents ran down, one towards the crater of 1855, the other towards that of 1868, this last current being about 10 ft. wide. The new crater has already attained the height of about 100 ft., on the top of which are three mouths, vomiting forth continually columns of stones. On the night of the 14th inst. its sides were full of fissures; the current which ran towards the crater of 1855 ceased to act, whilst the other current increased somewhat its velocity. The grand cone became more active, and launched its

columns of stones to a great height. On the two following days there was a diminution of eruption, and the instruments in the observatory were but slightly affected. Few persons visited the mountain, as the weather was most atrocious. There were no signs in Resina, Torre del Greco or Bosco Tre Case of a speedy invasion of the lava, and people remained tranquil; but the thunders from the Grand Crater continued at intervals and was followed always by streams of lava. On the 18th instant the instruments increased slightly in activity, the thunder and shocks were continual, and during the whole of the night a red light was plainly observable above the great crater, being the reflection from the lava contained within that mighty furnace. During the day, the weather being somewhat better, numerous visitors ascended the mountain, amongst them Father Secchi, Father Denza, and Prof. Legnazzi, director of the Observatory of Padua. Prof. Palmieri, in his report of that day's proceedings, writes as follows:—"The eruption of Vesuvius continues without variation, or any indication of an approaching increase. On the northern margin of this space, which forms the crater of the principal cone, a small cone has been formed, from the top of which issues a large quantity of smoke, whilst from its base flow out, generally twice a day, streamlets of fire, which are almost always extinguished before arriving in Atrio del Cavallo. Meanwhile, from the central crater numerous projectiles are thrown to a height of between three and four hundred feet, accompanied by low thunders. At the bottom of this crater the level of the lava corresponds nearly with the base of the new cone." My last report is from Cozzolino, who speaks of an accident, the only one during this eruption, which befell a poor fellow, one of the guides, on Wednesday night. Too incautious perhaps, he had ventured within the area on which the stones I have already described were falling, one of which struck and broke his thigh. Too much caution cannot be exercised by those who visit the mountain during the night, as the darkness prevents persons from seeing the stones which are thrown out of the mountain, and which, in their fall, bring death with them.

I quote from the *Emancipatore Cattolico* the following bit of artistic intelligence, which may interest some of the readers of the *Athenaeum*:—"Prof. Boschi, who, from motives of health, was spending last August in the island of Capri, discovered in the suppressed monastery of Certosa (now used as barracks), a painting in fresco, which he supposes to be 'Giottesco.' It is very perfect, and is just over the principal entrance-gate, which is now closed. It represents the dedication to the Madonna of the Capri Monastery, by its founder, Giacomo Arcucci. On the left of the fresco, amidst a group of women who are praying to the Madonna, Boschi has recognized by its historical characteristics the Queen Johanna the Second. Such a discovery is the more important, as the likeness of this Queen, which was painted, as some believe, by Giotto, in one of the lunettes of the Incoronata in Naples, was lately destroyed by the fall of that portion of the plaster on which was painted the head of that very beautiful figure."—H. W. in *Athenaeum*.

THE BARROW DRAINAGE.

At last there appears (says the *Leinster Express*) to be a probability that Mr. Bower's plan for the drainage of the Barrow will be carried out. On Tuesday last a deputation waited on the Marquis of Hartington with the view of obtaining the aid of Government to accomplish the scheme. The new Chief Secretary, we are informed, entered with interest into the memorial of the deputation, and agreed to communicate with the Board of Works and the Government upon the subject. We have no doubt that the Government will give the desired aid. They have granted a large sum of money to assist the completion of the Shannon drainage works, which are

not more important than the proposed Barrow improvements. Year after year immense tracts of country bordering on the Barrow are under water, and valuable property is destroyed by these annual inundations. A large tract of country near Monastercavan is flooded for a considerable portion of the year, and for the rest of the year is rendered almost useless. We regret that there has been a great diversity of opinion relative to the plan of drainage. This is, perhaps, not to be wondered at when we consider the cost of the immense works which Mr. Bower proposes to carry out. The cost of his proposed improvements would be £195,000, and the proposed district consists of about 50,000 acres. Into no better hands, however, could such an extensive undertaking be committed. Mr. Bower, we are informed, has executed with great success works to the value of about half a million sterling. The majority of the opponents of Mr. Bower's plan do not resist his scheme because they deem the drainage of the Barrow unnecessary. They admit that something must be done to prevent the property in the district of the Barrow being sacrificed as hitherto. They would, however, carry out the necessary improvements on the principle of "every man for himself." Some of the proprietors of the Portarlinton and Rathangan head streams propose to drain their own districts only, and would turn the water down on the lands of the proprietors below them. Other proprietors on the "Tully" and "Cherry Mills" tributaries would drain their districts on their own account, and inundate the lands near Bert most ruinously. To be sure, the proprietors below the Rathangan and Portarlinton head streams, and at Bert could play at the same game, and turn the water on the proprietors below them. But in order to do this, the Marquis of Drogheda, Mr. Evans, and the other proprietors of the district injured by the Rathangan drainage would be obliged to bear the enormous cost of removing the great shoal at Monastercavan and of completing other works in the main stream, and a similar expense would fall upon the proprietors at Bert. This would be a manifest injustice.

STORM AT KILKENNY.

THE *Moderator* of Saturday contains an account of the damage caused by storm in the City of Kilkenny:—

Yesterday morning we were visited with, by many degrees, the most serious of all the storms of this stormy winter. There was no premonitory symptom or gradual rising of the wind, but just before four o'clock a.m. it suddenly burst over our city like an eastern tornado, shaking every house and building in such a way as to waken up all the sleepers; and for more than an hour the shocks of the wind, coming from the north-east, were repeated momentarily, dashing in windows, carrying away slates, tiles, and chimney-pots, and in many places levelling houses to the ground. The scene which our streets presented when day broke was extraordinary. Ruin and devastation was to be seen in various districts, and under several houses the highway bore the aspect of a slate quarry. There was scarcely a house in the city which was not more or less stripped of slates, and we should say not a single one which did not receive at least some damage to windows, ridge-tiles, or chimney-pots. However, as regards more serious injury, the entire front gable of the old Elizabethan house occupied by Miss Birch, corner of Bull-alley, fell out into the street from the second storey. Four smaller houses were levelled at Greenshill. The end gable of Miss Dunne's house in Walkin-street fell bodily into Mr. Brophy's stone-yard adjoining, and the front now leans into the street in the most threatening and dangerous way. At Newpark House a stack of chimneys fell through the roof, and narrowly missed falling on the bed in which a member of Col. Bull's family was sleeping. Some plate-glass windows at Kilkenny Castle were blown in. Seven large stones were knocked off the parapet of the ancient Round Tower at St.

Canice's Cathedral. The roof of the south transept of the Roman Catholic Cathedral was much injured. At St. Kyrau's College the pinnacle and carved stone cross which surmounted it were dashed from the great central gable to the ground, and some of the parapets in other parts of the building sustained injury. The vane surmounting the Tholsel cupola was crooked by the force of the gale. The fine old elms on the Canal-walk were severely dealt with. Sixteen trees on that promenade were blown down: some of these, in falling, broke down the Castle wall. In the College lawn seven of the remaining trees of the line of splendid old poplars, which formed so striking a feature to the eye of the visitor in search of the picturesque, now measure their length upon the sward. Some trees were also blown down in the Castle grounds; and all along the various roads leading into our city the traffic from the country was seriously impeded in the morning by the many trees lying across the way. Much damage has been everywhere done, the only consolation being that no lives have been lost, nor any serious personal injury sustained.

HOW JACK PLANE BECAME A BUILDER.

A TALE FOR APPRENTICES.

By an Old "Chip."

UPWARDS of fifty years ago—perhaps it might be less or more—a little boy was born into the world who had no silver spoon in his mouth. His father was a butler in a gentleman's family, and his mother was an undignified cook. Young Jack Plane, as soon as he could read and write, had to don a servant's livery, and begin the world as pantry boy in the same family where his father lived. Cannie Jack did not relish being a lacquey, he had a greater ambition to become a "chip," with certain ultimate resolves. However, Jack continued in livery until he was between fourteen and fifteen years of age, when one morning he broke some plates and dishes either by design or accident. This sealed his fate. Having got a good lecturing for doing the same, he swore "he would not be a mean kitchen-boy any longer." His father admired his pluck, and his burly mother was also proud of her little Jack's resolution. "Mother, I want to be a carpenter." "Very well, my son, you shall be one. There is nothing like having a trade at one's fingers' ends; you can throw it aside, my son, if you can get better opportunities, and, if you fail, you can take your trade up again." The old couple had saved a little money for "the rainy day," and from this fund twenty pounds was given as a premium to a small builder to teach Jack the mystery of his chosen craft. The two first years of Jack's apprenticeship were sorrowful days. In cold weather Jack's fingers were afflicted with chilblains, and the cold used to benumb them so much that he was often incapable of driving the "Jack Plane" or of using a paring chisel. Often Cannie Jack was obliged to run home with his hands benumbed and bleeding, and it was not an unusual sight to see two or three of his fingers on each hand tied in rags. Jack was a rather awkward boy in handling his tools, and scarcely a day passed over but he had a fresh cut. In sooth cannie Jack was rather unpromising in the early years of his servitude, and his master very often cursed him deeply and loudly for being "a stupid little botch." The workmen in the shop used to delight in "taking a rise" out of Jack by promising to give him "the lines" for setting out certain pieces of framing. Another time they would tell him he

should have some nice circular work to do; but the circular work generally turned out to be a job at turning the grinding-stone on a frosty morning perhaps,—a task that set Jack's chilblains mad, and ended by driving him home utterly helpless and crying.

Cannie Jack went on never caring, doing his best to please his master, and hiding or burning his "dead men" whenever he spoiled their beauty by cutting their shoulders or feet too short. His "dead men" were many, and living as well as dead he left them not a leg to stand upon. Cannie Jack, however, like Louis Napoleon, had one grand idea, which he never lost sight of for a moment. He made up his mind that he would be a builder, and he systematically prepared the way for that event. He determined to serve his apprenticeship out, and even work up his lost days for his master, but he was resolved that he would never work a day's journey-work. An apprentice to-day and a builder to-morrow, that was Cannie Jack's plan, and he concentrated all his energies to make it so.

After the first year Jack began to study the amount of building appliances and materials it would be necessary to possess to commence as a builder on one's own account. He made up a rough inventory from what was in his master's use, and as soon as he thought he had a complete list he began operations. Wherever Cannie Jack heard there was to be a sale of old building materials, he made it a point to attend if he could, and after working hours it was his habit to take a tour about the city here and there to look up odds and ends. In this way he bought old ropes, buckets, riddles, wheelbarrows, ladders, scaffolding poles, and sundry other utensils. His father and mother occasionally assisted him when the article he wished to purchase exceeded his savings. One of his sources of income was little jobs on his own account in the evenings. On the last year of his apprenticeship little Jack had a tidy stock of portable fixtures stowed away in an old coach-house and waste garden behind his lodgings. His master knew he was a cute lad, although a "slow coach" with his tools, but he never suspected he was preparing to set up in business immediately after he was out of his time.

"Cannie Jack" had, during the last year of his time, began to think that he might increase his prospects by the addition of a wife who possessed a little hard cash. He was lucky in discovering one whom he fancied suited him, not so much by her beauty, but she had just what Cannie Jack required. Cannie Jack made love to her £300, and won her into the bargain. She knew he was a "pushing" lad, cautious, saving, and slightly devotional when it tended to forming respectable acquaintances. Jack married her, took a yard a month after he was out of his time, won over a few of his late master's customers, lifted his father out of the pantry and made him his walking foreman, and in due time the mother gave up the situation of gentleman's cook to be mistress of her own house and servant.

Cannie Jack prospered, became a big builder, and if he still lives, though he may be able to sign a contract, he would break down over a specification. He could square things remarkably well, and bring matters to a point, but if he was compelled to tell the difference between an isosceles triangle and an equilateral one he would die over the operation in a spasmodic attack.

Cannie Jack never heard nor knew what

"technical education" meant in his young days, but report says two of his sons, if they do not take to the Church for a living, will certainly be elevated to the bench. Their father having become comfortable by his shrewdness, thinks a turn at the bench, and the aid of a few lessons in mechanical and architectural drawing, may draw their talents out a little further. Although he could never understand Euclid himself, he is of opinion that a dose of the first four books would wonderfully improve their constitution. So they have gone under the course by their father's advice, and in the course of time Jack thinks his sons will be able to take up his business under better conditions than when he started in life. On one occasion, at a local dinner in honor of the completion of a building, Jack gave utterance to some blunt and pregnant expressions in reply to the toast of his health. "I'm a builder, it is true, and a prosperous one, but I owe my uprise in the world more to my tact than my talent. I never worked an hour's journeywork in my life, I mounted the ladder, not step by step, but up all at once, more by the action of my head than my hands. If a man wants capital never let him borrow it if he has to refund it, for if he is not born to it he will have to work for it and save for it. I was not blind, when a young man, to my own deficiencies; I knew what I wanted as a workman. It is quite possible through life that there were many of my patrons who employed me as a builder, and were perfectly satisfied with the works I executed, would not believe I was worth my wages as a workman. It was lucky, perhaps, for both sides that I met them on more equal terms."

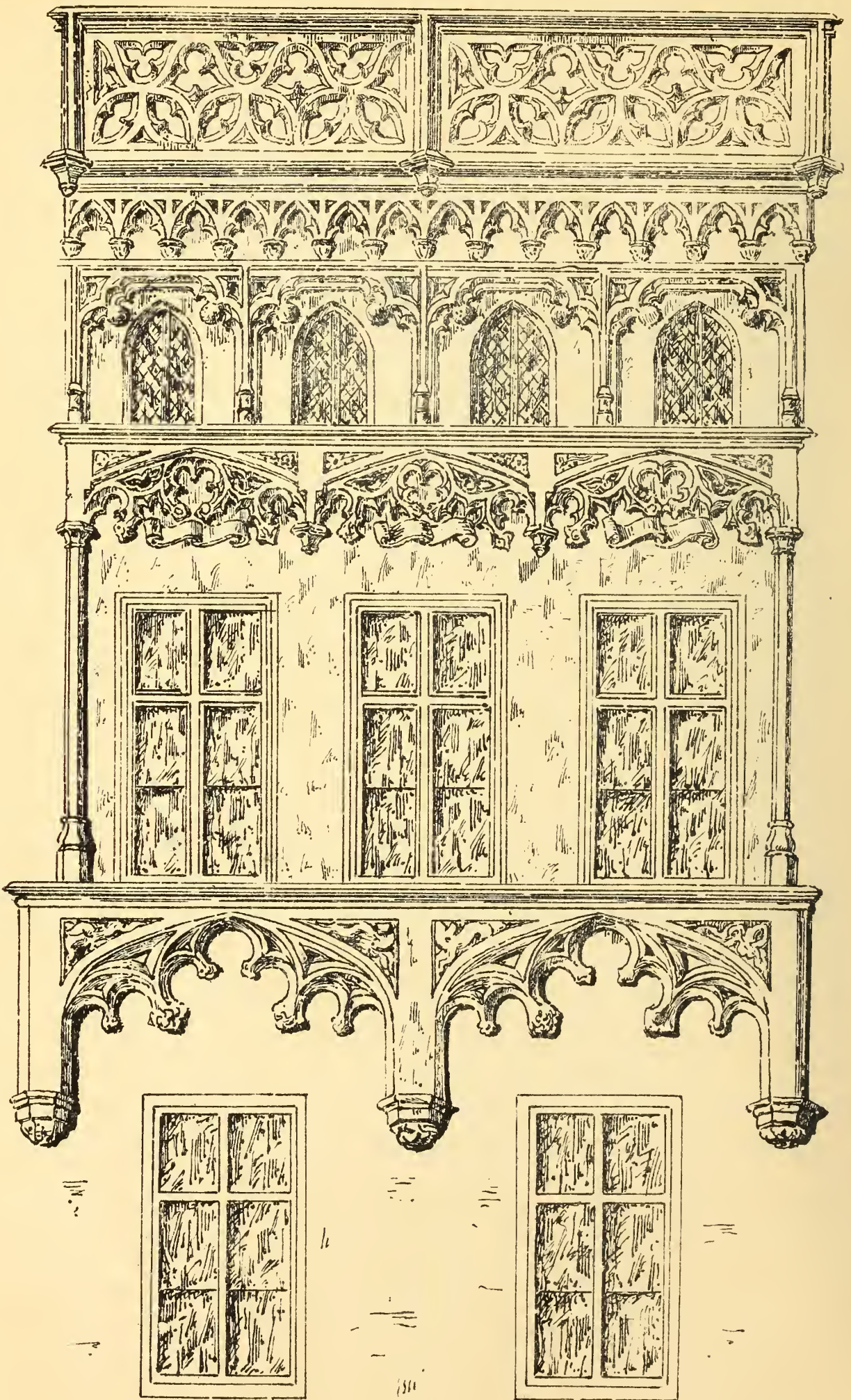
Cannie Jack has been a candidate for corporate honors, not that he desired it himself, but certain busybodies, who knew "how to make a good thing out of it," have caught him by the button-hole and invested him within the circle of their acquaintances. Jack, in his sober age, now reads the *Times* every morning, is an advocate for the technical education of the artizan, and of making every builder's shop a normal school of art; he goes in also for the compulsory vaccination of the infant fathers of our future men. Remembering what he suffered himself from chilblains in his youth, he is double anxious that our future workmen will be able to handle their tools without cutting their fingers, and thereby "murdering time" and materials.

BOOKS RECEIVED.

The Student's Guide to the Practice of Measuring and Valuing Artificers' Works. By E. W. Tarn, M.A., architect. London: Lockwood and Co.

This is more than a useful book, and should be in every architect's and builder's office. It contains a vast amount of information absolutely necessary to be known, but unfortunately now seldom acquired by the architectural student, or the builder either. Every architect should be fully conversant with the details of taking out quantities; not that we would have him practise surveying, but that he may be enabled to value his own work. This, of latter years, has been left exclusively in the hands of a separate class, and consequently we find that proximate estimates to the value of a building (often seriously wide of the mark, and obtained by cubing the areas) are, in many instances, the rule in the modern architect's office. This is an injury to the builder, and acts with redoubled force upon the architect himself, because he is compelled to adopt some cheese-paring principle, or else

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avail himself of the services of a builder who cares little for the sum total of the contract so long as he may be employed;—the consequences are easily imagined. A number of useful calculating tables, and a variety of information upon subjects in connection with building, together with numerous plates, are embodied in the book, which should be as well known in the architect's office as how to handle a pair of compasses. There is one chapter on smith's work which we specially commend to notice now that cast and wrought iron are being so generally introduced as building material; the relative strength of each is carefully calculated, and the method shewn by which their bearing powers can be tested under different arrangements of weighting. Taken as a whole, the book is a most valuable addition to our stock of building information; and, although we have made it our study in being acquainted with all these particulars, we believe we have been in a measure still uninformed. In it the artizan is instructed in a variety of matters he now accomplishes by the rule of thumb; while the most enlightened cannot take exception to its teachings.

Journal of the Royal Historical and Archaeological Association of Ireland, No. 4, 1870.

THE present number of this Journal comprises several valuable papers, amongst which we may notice one by Mr. John G. A. Prim on "The Corporation Insignia and Olden Civic State of Kilkenny." Engravings are given of the City Sword, and the great and small Maces, together with the Ancient Private Seal of the Commons of Kilkenny. A paper by Mr. W. F. Wakeman is also illustrated by several beautiful engravings on wood.

The Floral World and Garden Guide. New Series. London: Groombridge and Sons.

To all interested in, or having a taste for, floriculture and horticulture, this sixpenny monthly will be found a desideratum. In its pages will be found articles on the cultivation of the rose, the vine, &c. In the number for the present month we find a paper entitled "A Gay Window Garden," in which we are told that "The cultivation of a few plants on the window-sill is certainly one of the most interesting and pleasurable occupations in which those having no conservatory nor other convenience for plant-growing can engage. The embellishment of the window-sill is not, however, a matter of interest to those only who have no other means of enjoying a few flowers of their own growing, because few adornments enhance the appearance of a dwelling-house more than flower boxes at the principal windows. By well-directed efforts, it is surprising what a large number of flowering plants can be grown in that way, and how easy, comparatively speaking, the floral decoration of the windows becomes. The most important step to take in connection with plant-growing outside the window is to eschew pots altogether, and to employ well-made boxes instead. It is a matter of extreme difficulty, after the beginning of June, to keep pot-plants in health. The fierce heat of the sun, playing upon the sides of the pots, scorches the roots of the plants, consequently all healthy growth is checked, and they soon present a languishing appearance. Even if the roots were not injured by heat, they would be by drought, because it would be practically impossible to keep the soil moist enough to maintain a healthy growth. These remarks respecting plants in pots refer, of course, to those only which are placed upon the sill, without the sides of the pots being protected; because, when the windows are furnished with boxes, plants in pots can be employed according to the means and wishes of each cultivator, as the boxes can be loosely filled with cocoanut-fibre refuse, and the pots plunged to their full depth. The roots and soil will then, of course, be beyond the injurious influences of the heat from the sun. Indeed, to carry out window-gardening in the

most perfect manner possible, the whole of the plants should be grown in pots, to admit of frequent change." A colored plate is placed in front of each number. Could not some improvement be made in the method of sewing the numbers?

The Rainbow Stories. Parts 1 and 2. London: Groombridge and Sons.

Who can gainsay the words in which the prospectus of this serial is introduced?—"Recreative reading invigorates the intellect, and stories of the right sort, true in fact, or true in nature, perform a good work in Education, and tend to awaken the nobler sentiments of the heart." Each number comprises forty-eight pages, of convenient size, printed on thick toned paper, and illustrated. It deserves a large circulation.

Colonial Questions pressing for Immediate Solution in the interest of the Nation and the Empire. Papers and Letters by R. A. Macfie, M.P. London: Longmans and Co.

THIS pamphlet discusses several questions of a political nature, into the merits of which we cannot enter. "Irish neighbours" should be deeply indebted to the author for the compliment paid by him in introducing Ireland as a "chronically complaining country."

Report on the Drainage of the Borough of Belfast—J. J. Montgomery, Engineer; also, Report on the Proposed Plan, by J. W. Bazalgette. Belfast: Bairds, Arthur-street.

THIS is a second edition of a pamphlet published about three years ago. It is accompanied with a large lithographed plan showing the proposed systems for drainage, reclamation, and sewage irrigation. In a prefatory note the engineers state that "In republishing the following reports, it is necessary to state that the irrigation having been decided on, and the levels and other data having been more accurately determined, an improvement of the whole scheme will be effected by the modifications shown approximately on the plan. Other alterations have become necessary in consequence of new buildings, docks, &c., but the scheme remains virtually as we had previously proposed. It is satisfactory to be able to state that further investigation confirms the opinion that the works will be very successful, not only as regards their efficiency in promoting the health and comfort of the inhabitants, but as regards their financial results. The profits from the irrigated lands will go a long way towards repaying the cost of the thorough drainage of Belfast." We have no doubt that when the Act is obtained the works will be vigorously carried on by our northern friends.

CAREER OF DR. W. H. RUSSELL.

("TIMES" CORRESPONDENT.)

THE germ of modern war correspondence (says the *Graphic*) may be traced to the green hills of Erin, and the year 1845, when Mr. W. H. Russell reported the account of the famous monster meetings for the *Times*. What a number of marvellous scenes that pair of observant eyes has since witnessed! First, the horrors of the Irish famine, and then the panorama of the Crimean war, including the gallant fight of the Alma, the headlong charge of Balaclava, the desperate struggle of Inkerman, the great storm of November, 1854; the rigorous winter, with its sufferings; the Kertch expedition; the attack on the Rodan, and the fall of Sebastopol. Then an interval of peace devoted to a description of the Czar's coronation at Moscow. Then the campaign in which Lord Clyde crushed the Indian Mutiny. Then the civil war in America—but like the French Government at the present time, the officials of the Northern States did not care that the people should hear the plain truth, and, offended with Dr. Russell's too accurate description of Bull's Run, they summarily stopped his career

as a war reporter. In 1865 Dr. Russell sailed in the *Great Eastern*, when the first and unsuccessful attempt was made to lay the Atlantic cable. Next year, during the Seven Weeks' War, he was attached to the Austrian headquarters. In 1869 he resumed his rôle, long laid aside, as a courtly chronicler, visiting Egypt in the suite of the Prince and Princess of Wales. 1870 recalled him to his sterner duties, and he has marched with the Crown Prince's army from the interior of Germany till it took up its position at Versailles. Dr. Russell was born in the County of Dublin in 1821, was educated at Trinity College, and called to the bar of the Middle Temple in 1850. Many of his letters have been gathered together in the form of books, besides which he has written on rifle clubs and volunteer corps, has narrated the incidents of the Prince of Wales's marriage, and has written a novel, "The Adventures of Dr. Brady."

L A W.

COURT OF QUEEN'S BENCH.—February 8.

(Before the Lord Chief Justice.)

Ingram and M. Williams v. Jas. G. Mooney.—This was an action to recover damages, laid at £2,500, for injury to plaintiffs' premises through the alleged negligence of defendant. The plaintiffs are drapers carrying on business at 14 Lower Sackville-street, and defendant is a wine merchant in Lower Abbey-street. Some time ago defendant, with the view of enlarging his premises, purchased the adjoining houses, 12 and 13 Lower Sackville-street. The houses were taken down for the purpose of rebuilding, and it was alleged on the part of plaintiffs that in the execution of the work the side wall of their house had been cracked and injured, and that defendant was liable, in consequence of negligence, in not properly shoring and underpinning. The defence was a traverse generally of the cause of action, and also that defendant was not bound to give support to the house 14.

Evidence was tendered on the part of plaintiff, which the Lord Chief Justice refused to receive, considering that it was illegal; and

Sergeant Armstrong, on the part of plaintiffs, elected to be nonsuited.

Counsel for plaintiffs—Sergeant Armstrong, Mr. Exham, Q.C., and Mr. Gerald Fitzgibbon, instructed by Messrs. Hallows and Hamilton. For defendant—Mr. Macdonough, Q.C., Mr. Heron, Q.C., M.P., and Mr. Holmes, instructed by Mr. R. W. Peebles.

[It would be highly desirable that our City Engineer should take immediate steps for the removal of ruinous houses and premises within his jurisdiction. It is only a few months since there was a providential escape of lives in William-street, where two old fabrics tottered down in the night-time. Within the past week we visited the new Crown Insurance Office in Dame-street, and we were horrified at the sight presented by the dilapidated buildings in its rear. Why are not the owners called upon to have them demolished at once?]

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THERE will be an ordinary general meeting to-morrow (Thursday) evening, at eight o'clock. Papers for the evening:—James M'D. Birmingham, associate: "The President's Address and Building Surveyors." William Butler, associate: Description of his Measured Drawings of Christ Church Cathedral, Dublin, submitted in competition for the Fitzgerald Prize Medal. Recommendation papers to be read:—As fellow: W. M. Mitchell, associate, 13 Suffolk-street. As honorary fellow: Rev. J. W. Hardman, LL.D., 37 Leeson Park, Dublin, and Blockley Court, near Bristol. As associate: W. B. Law, 3 Drumcondra-road, Upper.

LIMES AND CEMENTS.

THE first of a course of lectures on limes and cements was delivered by Lieut.-Col. Scott, R.E., before the Architectural Association (London), on Monday evening, the 6th inst. The president (Mr. T. H. Watson) in the chair.

The subject of limes and cements, the lecturer observed, was one which awakened very little interest amongst workmen, and met probably as little attention from those whose task it was to direct the building of works. Mortar-making was generally given over to the labourer, who compounded it pretty much according to his own fancy; his first desire being to save himself as much trouble as possible, his second to satisfy the bricklayer or mason who had to use his preparation. A strange confusion had hence arisen as to what really constitutes the right proportions of sand and lime to use in preparing a given quantity of mortar. The mason or bricklayer mixed the ingredients in that proportion in which he could use them most readily, but it by no means followed that what was most convenient to him was most suitable to the work he had to perform. The different kinds of lime in use were greatly dissimilar in many respects. The white chalk, as far as building purposes were concerned, yielded a lime very much inferior to that which was yielded by the lower chalk limestones. The latter were hardly worked at all in this country from the prevailing ignorance concerning their utility. At the risk of being charged with egotism, he must here refer to instances he had had brought under his own notice, in which the ignorance of limestones and limes had been more or less displayed. When he was a very young man he happened to be employed at Gibraltar; amongst other duties one was to superintend the construction of a revetement wall. The wall in front of which the men under his orders were building was an old Spanish wall which supported a large quantity of sand, and in making the excavation in order to put in the foundation they came upon a bed of hard shale. On a Saturday evening he left this shale in a firm, solid condition, and on the Monday following it had assumed a liquid form. It let out the sand, and the whole mass falling very nearly buried the men beneath it. What could have caused this change was the question naturally asked. It was only to be traced to the presence of a small quantity of sulphuret of iron which had attracted oxygen from the atmosphere. The curious part was that at that time they were bringing their cement from England in order to put it in this foundation, whilst these deliquescent stones which they were excavating formed, when properly prepared, quite as good a cement as that which was being imported. The captain associated with him in this work was a practical builder, and used to apply this test to the cement in ordinary use: he would thrust his hand into a barrel, and if the cement felt warm it was good, but if cold, he usually concluded that it had been ruined in the transfer to Gibraltar. The fact of its being warm was a proof that it had not been quite spoiled—that was all. Some time after, at Plymouth, he found other beds of lime, which gave a capital hydraulic lime. Whilst experimenting on these stones he found a curious effect produced by a dull fire; he was at a loss to understand it, but he found that the lime, instead of slaking and heating as it should have done, set into a solid hard mass when ground to a powder and mixed with water. He consulted Dr. Faraday respecting this, and they came to the conclusion that the change was due to the formation of some form of "subcarbonate of lime." Subsequently it turned out that the action was due to the presence of a small quantity of the sulphate of lime which had been formed from the sulphuret of iron in the coal. When he mentioned this to Dr. Miller (his master in chemistry), that gentleman could hardly believe it possible that lime could have been used for 4,000 years, and such a simple fact never before have been

discovered. A little later he had to visit Barrow, which has a celebrated lias quarry. The limestone there occurred in several layers varying from a foot to 5 or 6 inches in thickness, with considerable bands of clay between them. They varied much in composition. Some of them had more clay in them than others, and these were not very readily slaked when dealt with as mortar, and the consequence was that these beds were looked upon rather as an injury than otherwise to the other lime which was made. These were called Rummel beds by those using them, whilst another bed was termed "good for nothing," its supposed quality being thereby indicated. From the outside of their best stones the men cut off chippings, which were thrown back into the pit. If they wanted ground lime their practice was to grind up the best lump-lime they had; but he pointed out to them that they would make better ground lime if they mixed together the three kinds of lime indicated, viz., the "Rummel," the "good for nothing," and the "Slavin" beds, and was at last successful in persuading them to adopt this plan. One fact in connection with this incident ought to be mentioned, to the honour of the Messrs. Ellis, the owners of the works. They wrote some time after to tell him that his suggestion would turn out much to their advantage, and that as a token of their gratitude they proposed to give him a shilling per ton for seven years. This course had been pursued, the quantity had been continually increasing, and all he regretted was that his seven years expired next Christmas. He had seen another curious mistake with reference to the use of lime in London. He imagined he had seen something very like lias lime or grey lime thrown into the Serpentine for purposes of purification. He was certain, however, that six years ago large quantities of grey lime were thrown into the Thames during a very hot summer for similar purposes. One of the grey lime manufacturers told him he was supplying a large quantity for the Thames, and on being asked why the authorities did not get the white chalk lime from Gravesend, the reply was, "That is their look-out; my business is to sell lime, not to teach my employers chemistry." By using grey lime 20 per cent. was wasted, and in addition the authorities paid something like 2s. a yard more for it. Having given these examples of the ignorance displayed by those using lime and cements, the lecturer proceeded to speak of substances which were concerned in limes and cements, and the origin of those substances. He exhibited a diagram, on which were mentioned the substances chiefly found in hydraulic and common limes. Without going into the geology of the earth's crust, but taking granite as a sort of starting-point, he pointed out that acids would decompose substances such as were contained in granite. The whole, indeed, of the substances which were found in the older beds of the earth consisted principally of silicates of lime, alumina, iron, with some alkalis. These silicates were decomposed by acids. Rain found carbonic acid in the atmosphere, and, charged with this carbonic acid, decomposed a silicate of lime, and as a result a carbonate of lime was formed and the siliceous matter set free. These were washed down by rivers, and the grosser portions were obtained as sand, a great deal was carried down as carbonate of lime in suspension, and a portion also was brought into solution and carried into the sea. If the carbonate of lime was deposited without foreign admixture and the deposit subjected to heat, a crystalline limestone was obtained; if clay was deposited with the carbonate of lime, a hydraulic limestone might be the result. Speaking of the portion in solution, the lecturer said that a part flowed into the ocean, and there underwent a marked change, being dealt with by organic life. Of the portion carried down in suspension the quantities were really enormous. The Ganges, for instance carried down 500,000,000 tons per year; the Mississippi, 300,000,000 tons per year; the Irawaddy 100,000,000. The whole of Holland was composed of

matter in fine suspension which had been carried down from the Rhine. If they came to the chemical deposits as contra-distinguished from such deposits as had been held in suspension, and took carbonate of lime as an example, they found that at Carlsbad there was a spring of water issuing from the earth charged with carbonate of lime, and when some of the carbonic acid evaporated, there was enough carbonate of lime deposited to form large beds and be used for ornaments. The like was also to be seen in Tuscany, and in various parts of Asia Minor, particularly at Smyrna. At Göttingen there was a stream of water used for turning a mill, which so filled up its channels, that they had constantly to clear out the deposit. Near Rome, also, examples of the same sort existed. The matter brought down in solution was deposited by a chemical process, either by evaporation or the escape of carbonic acid gas, which held it in solution. He would now say a few words on the effect which organic life had upon carbonate of lime and silicic acid in solution. One part of carbonate of lime was soluble in 10,600 parts of water, and we might assume that sea-water contained about one-tenth-thousandth parts of its weight of carbonate of lime. An immense quantity of this carbonate of lime was taken up by oysters, corals, animalcules, and other living organisms. It was common to talk of a man as "drinking like a fish," but to say "drinking like an oyster" was perhaps more expressive. Supposing they were to take a man 75 years of age, put him into a press and squeeze him out, there would be obtained from him 45lbs. of solid matter, and 5½ pails of water. A man in the course of 75 years drank as much as a thousand times his weight of water, but an oyster, supposing that it could extract from sea-water as it passed through its stomach every particle of carbonate of lime which the water had in solution, would pass through its body something like 50,000 times its weight; and yet, notwithstanding this, the water flowed down on the Rhine contained sufficient carbonate of lime in solution to supply shells for 300,000,000,000 of oysters. But what the oysters would do in this way was nothing to what the coral was capable of doing. After speaking of the use of oyster shells and coral-lime limestones for lime, the lecturer proceeded to remark that carbonate of magnesia was also dissolved by water, but was not so soluble as carbonate of lime. There was very little of this found in animals, but it was abundantly taken up by sea-plants. As carbonate of magnesia was taken up by sea-plants, and by animals, a tendency to the separation of these two substances ensued. Turning to the chemistry of his subject, the speaker first dealt with carbonate of lime, which, he said, consisted of lime and carbonic acid gas. If he put carbonate of lime into a fire, and burnt it, the carbonic acid gas was driven off, and lime remained, and if he put carbonate of lime into a vessel and treated it with acid, carbonic acid would be given off. In this case they would not have lime remaining, but a substance derived from the muriatic acid, hydrochloric acid, and lime. The lime obtained by burning was a white substance which phosphoresces under heat, and which when treated with water, underwent a violent change. When the hydrate of lime formed by treating the lime was mixed with sand, made up into mortar, and then exposed to the atmosphere, the substance slowly returned to its original condition. One part of the hydrate of lime was soluble in 800 parts of water. The carbonic acid gas of the atmosphere was small in quantity, and could never penetrate to a great distance below the surface, the consequence being that they could never get a very good result out of pure lime, such as could be obtained by burning white chalk. Many persons supposed that mountain limestone would give a very good lime, and in some senses it would do this. It was a good lime for the smelter, the candlemaker, and the soap-boiler, but it was not a good lime for the builder. Alberti, the architect, who had written much on the subject of limes, asserted

that he had seen lime more than 500 years old, which had been found in a pit, and which even after that period was well tempered. Dr. John, a German chemist, found at Landsberg in a pit at the basement of the castle of that name, lime which had been there 300 years, and which was used again in rebuilding the castle. It must be clear that if lime could remain in that condition without undergoing any change if protected from the atmosphere, they would not get any very good result out of it. As long as hydrate of lime remained wet, it was simply a pulp or paste; when it became dry it was little better than dust. Carbonate of magnesia when burnt yielded magnesia, which was not so soluble as hydrate of lime. A hydrate of magnesia was soluble in 5,000 parts of water, as compared with 800 parts of hydrate of lime. The former had been used as a hydraulic lime in Madras and elsewhere. When they got substances with the lime, such as siliceous clay, they found a different set of reactions took place, and were then no longer dependent upon the carbonic acid of the atmosphere for setting properties. Supposing they put siliceous clay and lime together, and heated them, a change took place in the former, and from being a substance very insoluble in acids, it became gelatinous, and altogether altered in character. The lecturer here showed a specimen of good grey chalk lime, which had been treated with acid. If, he said, his hearers examined the residue at the bottom of the vessel, after the lime was dissolved, they would find a somewhat gelatinous mass. This was the siliceous. When they mixed the grey lime with water and made it into a paste, the siliceous and the lime formed, together with the water, a hydrated silicate of lime. Here then they had a substance which would be set without the influence of the atmosphere. Such a substance as this would not have remained like that found at the castle of Landsberg. It would have hardened into a solid mass. It was only such a lime as this as was fit for heavy masonry, or any exposure to damp or wet. If they took lime and pure siliceous and treated them in this way after burning them together, they did not get a substance which set quickly when water was added, and the whole was made into a paste; but if they got iron or potash and soda present, they would find that quicker action took place. Siliceous was, in fact, a substance which combined more readily with several bases than with one. Roman cement set quickly for this very reason. As regards sulphate of lime, the lecturer said that one part was soluble in 500 parts of water. It was, therefore, manifest that this was a substance still less able to stand the action of wet than pure lime. Good use, however, might be made of it for inside work. Sulphate of lime contained too within itself the power of setting. When exposed to the action of heat, it lost a portion of its water. If the whole of the water were driven off, it did not set rapidly again; but with three parts driven off, then, when mixed with a fresh amount of water, it rapidly passed into a solid state, and combined with the water to form the hydrated sulphate of lime. It could only be used for plastering and inside work. The lecturer here made a few observations relative to the action of sulphate of lime in controlling the action of lime. If water were added to quicklime, the quicklime rapidly fell away to a fine powder. If they took the lime and impregnated it thoroughly with sulphate of lime, then they would find that it would no longer undergo the slaking action. What the theory of the thing might be, one could hardly say with any certainty. In concluding this portion of his subject, the lecturer said he had dealt with three different classes of subjects. First of all there was the pure lime, the oxide of calcium, which combined with water and made a soluble substance, and which could only be hardened thoroughly by the action of the carbonic acid of the atmosphere, which never penetrated it to a great distance. Next, the silicate of lime, which might or might not be mixed with iron, alumina, magnesia, and so on, which had the power of combining with water, and by

degrees set into a hardened mass; but this rarely took place with very great rapidity, unless large quantities of such substances as potash, soda, and iron were present. The water had to dissolve by degrees particle after particle, so as to bring it into close contact with the silicic acid. Siliceous and lime did not enter into a silicate form in the burning of limestones, but only approximated to it until water was added. Then they came to the third class—the sulphate of lime, which was totally unfitted for anything but inside use. He would now say a few words on the question of chemical equivalents. After alluding to the symbols in common use to denominate different substances, as appeared on a diagram, the speaker said that the first point to be remembered was that wherever they found such a substance as lime, the proportion of oxygen and calcium in it always was constant. Next, when they had found the proportion in which oxygen would unite with calcium and the proportion in which oxygen would unite with hydrogen and combine with magnesia, they knew the proportion in which oxygen would combine with any other substance whatever. Again, when they had found the proportions in which, for instance, one substance mentioned on the diagram (sulphur) would combine with three parts of oxygen, and also found how oxygen would combine with calcium, they would know the proportion in which an oxide of calcium would combine with sulphuric acid. Referring again to the diagram, the lecturer said that the various numbers on it were so far arbitrary as this: they assumed oxygen to be eight, but they might as well assume it to be any other number except for facility of calculation. This gave the symbol for hydrogen as one, the result being that the chemical equivalent of water was nine. If he put a dose of water, nine parts by weight, to a dose of oxide of calcium in 28 parts by weight, the two would combine to form 37 parts of the hydrate of lime. If he took 40 parts by weight of sulphuric acid, they would unite exactly with 28 parts of lime, and so on. The symbols not only represented what were component substances, but also the actual quantities in which they combined. He had divided them into two classes: substances primary and secondary. As respects the question of mortars, he would say that when lime and siliceous together were exposed to the fire, great heat must be applied to fuse them. Supposing they put in a little potash or soda, then they fused readily. It was really another instance of what he had before said—that siliceous would combine much more readily with several bases than with one. He was now speaking with reference to the action of heat upon it. In those cases where lime and siliceous were found together, the action was not so ready as when there were several bases. Roman cement stone, for instance, had a very large quantity of peroxide of iron, and set with great rapidity; also, if Roman cement were burned at a high temperature, fusion was readily produced. Referring to another diagram, the lecturer was able with its assistance to show the proportions of clay in limestones as found at some quarry works near Bridgewater. In some beds it was as high as 25·55, in others as low as 11·95. If these beds were all burnt together some of them would be overburnt, and some underburnt. The quarrymen took the lower beds out (those that contained 25·55 of clay) and burnt them for cements. The others were burnt for lime, and as lime sent into the market. In conclusion, Lieut.-Colonel Scott stated he had consented to deliver this course of lectures solely with the idea of helping the younger members of the Association, and principally at the request of Mr. Redgrave. Some chemical experiments were then made in illustration of the lecturer's remarks.

BELLS IN CHICAGO.—In one of the Baptist churches in Chicago is to be erected, at a cost of 7,000 dollars, the largest peal of bells in the United States. There will be seventeen in all—the largest weighing nearly 4,000 pounds,—and will cover two octaves.

RAILWAYS.

THE following half-yearly reports have been issued, and will be submitted at the ordinary meetings during present month:—

DUBLIN AND BELFAST JUNCTION.

The directors submit, for the consideration of the proprietors, the usual statement of accounts for the past half-year. The traffic receipts compare favourably with those of the corresponding period of the previous year, viz.:—1870: Passengers and mails, £30,511 5s. 5d.; merchandise, &c., £14,855 4s. Total, £45,366 9s. 5d. 1869: Passengers and mails, £30,533 12s. 4d.; merchandise, £13,753 9s. 9d. Total, £44,287 2s. 1d. Showing a net increase of £1,079 7s. 4d. This result is very gratifying, as it evidences a continued improvement in the trade of the district traversed by the line. The total income from all sources amounted to £46,293 18s. 11d. The working expenses were (38·44 per cent. of traffic receipts) £17,411 6s. 11d., and, including rates and taxes, interest, and rent of Banbridge Junction Railway, amounted to £25,203 14s. 2d., leaving £21,090 4s. 9d., which, with the balance from last half-year's accounts, £3,537 13s. 5d., make a disposable sum of £24,627 18s. 2d. This surplus will enable the directors to recommend a dividend at the rate of 4½ per cent. per annum (less income tax), after payment of which there will remain £5,301 14s. 5d. to be carried forward to the credit of the next half-year's accounts. The working expenses have been £676 greater than in the corresponding period. No addition has been made to the capital account. The usual reports and certificates of the engineer and locomotive superintendent state that the permanent way and works of the line and the rolling stock have been efficiently maintained during the past half-year.

DUBLIN, WICKLOW, AND WEXFORD.

In the receipts there is still a falling off in minerals, and also a small deficiency in cattle—all other descriptions of traffic have increased. The total traffic receipts for the half-year—for the first time—exceeded £100,000, and may be expected steadily to increase. The working expenditure at the same time has also considerably grown. In the permanent way department, the increase of £1,306 is due to the large amount of labour and material on new rails and sleepers, and other works for the improvement of the line. The price of labour has also increased materially. In the locomotive department, the maintenance and renewal of engines, carriages, and wagons has cost £718 more than in the corresponding half-year. Several carriages and wagons have been entirely rebuilt, and a great deal of painting has been done. The increased expenditure in the traffic department, amounting to £690, is caused chiefly in the opening of a new station at Lansdowne-road, and placing extra guards on all the trains on the Kingstown line and Dalkey branch. The latter arrangement greatly facilitates the working of the trains, gives increased security, and saves much delay at stations. In the present accounts the directors have continued to charge revenue with outlay of every kind—except that for land and works upon the Wexford extension. The balance of revenue account available for dividend is £31,405 5s. Out of this the directors recommend payment at the rate of 2½ per cent. per annum on the original shares, in addition to the dividends on all the preference shares; this will leave a balance of £6,324 10s. 3d. to be carried forward to next account. The works on the extension are still progressing, and the directors have put strong pressure on Mr. Edwards, the contractor, to hasten the opening as much as possible. There is a great difficulty, however, in procuring labour in the country even at an advanced scale of wages, and it is feared that this will prevent the line being completed within the time named in the last report. The directors, however, will spare no exertion to accomplish the completion as speedily as possible. The traffic agreement with the London and North Western Railway Company has been satisfactorily arranged, and they have subscribed the promised sum of £30,000 towards the cost of the Wexford extension. Upon this being done, the English company proceeded to exercise the right given them by this company's act of 1870, and accordingly nominated Mr. Ralph Smith Cusack as director, to represent them at this board. The nomination was accepted, and Mr. Cusack has taken his place as a director. In deference to the wish expressed by the shareholders at the special meeting, held on the 5th of December last, the directors have abandoned the bill which they had intended to lodge in Parliament for the extension of the Kingstown line to D'Olier-street, and the construction of a new terminus there. Parliamentary powers are being sought for the construction of a system of tramways through Dublin and the suburbs, some of which would be so injurious to the interests of the railway that they must be opposed. It will also be necessary to

oppose in Parliament an attempt which has been made by the Waterford, Wexford, and New Ross Railway Company to obtain running powers over your Wexford extension. On the purchase by the Government of the telegraphs, an agreement was made with the Post Office authorities, whereby a considerable saving has been effected for this company. In pursuance of that agreement, the lines of telegraph are now maintained by Government, and the messages of the company are sent free.

GREAT SOUTHERN AND WESTERN.

The usual abstract of accounts shows the net surplus revenue for the half-year to be £143,589 10s. 8d., out of which the directors recommend that interest at the rate of four per cent. per annum be paid to the proprietors of the four per cent. preferential stock, and that a dividend at the rate of five per cent. per annum be paid to the proprietors of the consolidated stock of the company, which will leave a balance of £13,028 0s. 8d. to be carried to the credit of next half-year's account. Except on the article of goods, which still exhibits a large increase, the traffic receipts of the past six months have not been as steadily progressive as the directors could wish, but it must be borne in mind that the comparison is made with the unusually large increase of the half-year ending December, 1869, of £17,000. The decrease in the amount received from passengers we cannot account for, as the facilities afforded for travelling have been greater than usual. The decrease in the cattle traffic is owing to the reason assigned in our last report, viz., the falling off in exports to England, arising from scarcity of winter feeding there; but it is much less than we anticipated. There has been an increase of expenditure under the heads "maintenance of way," "locomotive power," and "traffic expenses," caused by increase of wages and cost of materials. But the greatest drawback with which we have had to contend is the payment of £6,475 for personal injuries, arising from the accidents near Tralee, and on the Cork and Limerick Railway; and there are still some outstanding claims which we have been unable, so far, to bring to a satisfactory settlement. Whilst we deeply lament the casualties to which passengers are liable when travelling by railway, and the losses arising therefrom, we feel that no precautions have been neglected on our part to prevent as far as possible the recurrence of such calamities. All these items of expenditure having been charged against revenue, we consider the payment of the usual dividend, with a surplus of £13,000, highly satisfactory. An agreement has been entered into with the directors of the Cork and Limerick Direct Railway, subject to your approval, for the purchase of that line, on the terms of £60 of the stock of this company for £100 of the stock of that company. Propositions have also been made to this company to become the owners of the Waterford and Limerick line, and the subject having repeatedly occupied the attention of the board, we have submitted the following offer, viz.:—To secure to the shareholders of that company a dividend of two and a-half per cent. per annum on the original stock, to commence from the 1st of January, 1871, which we find can be legally done under the powers contained in the Waterford and Limerick Arrangement Act, 1866. And in the event of an Act of Parliament being obtained to transfer the ownership of the line to the Great Southern and Western Railway Company, the payment of two and a-half per cent. per annum shall be increased to three per cent. per annum, whenever and so often as the Great Southern and Western Railway Company shall pay a dividend of six per cent. per annum, or upwards to its proprietors. This offer will be brought under the consideration of a special meeting of the shareholders of this company, if it shall be approved of by the shareholders in the Waterford and Limerick Company. It has also been proposed to this company to unite with the London and North Western Company of England, to extend the line of railway from Kingsbridge to the North Wall, a distance of about four and a-half miles, utilising as a portion thereof about one mile and three-quarters of the Liffey branch of the Midland Great Western Railway—the Midland Great Western Company to be remunerated by a toll on goods and cattle, &c., passing over it. The subscription of this company to be £50,000, and the balance to be paid by the London and North-Western Company. After some trouble and expense had been incurred in preparing plans, surveys, and in serving the necessary Parliamentary notices, unexpected difficulties arose with respect to the amount of the tolls to be paid to the Midland Great Western Company for the use of their portion of the line, which up to the time of writing this report, have not been arranged.

EARL SPENCER ON IRELAND.

The inaugural banquet of the Lord Mayor (the Right Hon. Patrick Bulfin) took place on Tuesday evening in the King's Room, Mansion House. The toast of "The Lord

Lieutenant and Prosperity to Ireland," drew forth from her Majesty's representative a statement of his views as to the architectural and other improvements which are being effected in our city and throughout the country. We make room for a few passages in his speech, which will bear conning over:—

"I should err greatly if I did not, in general terms, state something of my views as to the state of the country. And first I may allude to this city—this important capital of Ireland,—whose citizens are so numerous and influentially represented here to-night, and I may compliment you, my Lord Mayor, on the increasing prosperity of this country. This metropolis is a mirror, if I may so use the expression, of the prosperity of the rest of the country. As the metropolis of Ireland, it attracts to it much of the wealth of the country, and reflects the country's general prosperity! We have many signs of this prosperity, if we look around us every day in Dublin, whether we look at the throng and active bustle of the streets, or at the amount of shipping which crowds the quays and docks; or, again, at the numerous buildings which are rising to accommodate the increasing and spreading wealth of the citizens. It is satisfactory to find that those buildings are raised with great taste; that that love of architecture which has lately added so much attraction to the capital of England has not been neglected here; for on every side we see architectural edifices which show that the citizens who have the means are anxious to leave behind them monuments of the architectural taste of this age, and which, though they may differ in their style from the old buildings that are of so much interest in this country, will yet, I am sure, in after ages be worthy of those buildings. We have, happily, left that age when there was a want of taste in all our buildings, whether in our churches or in our other public edifices; and I think that the increasing taste displayed in this respect is a sign of the march of progress in this country! If I leave the more private marks of improvement and go to public ones, I must heartily congratulate the Corporation of this very important city on the efforts which they have made to promote a very important work connected with the sanitary improvement of this city. They have lately grappled with a matter which has been for a very long time in abeyance,—a matter which greatly affects the health of every class in this city. They have, I believe, brought forward, and successfully, a measure for the purification of the Liffey. *I was very happy, as were other members of her Majesty's Government, to be able to promote the efforts of the Corporation in this respect, and very heartily wish them success. They have already successfully provided good water for Dublin.* I sincerely hope that their endeavour to add to the pure water pure air will be equally successful! I will now pass to more general matters—matters connected with the general state of the country. I remember, when I stood in this place last year, that it was my duty to refer, in very measured terms, to an important Act which had been passed by Parliament in the year 1869. I wish now to refer, in like measured terms, to another Act which has been passed in the session of 1870, for I feel that it affects so greatly the material prosperity of the whole country that I should be wrong if I omitted it in speaking before you to-night. We have by this time had some opportunity of watching the commencement of the operation of the Land Act. I trust that it has already been to some extent successful, and that it gives hope of being still further successful throughout the country. It was conceived in a spirit of kindness to the people of this country. It did not aim at depriving any class of property or influence, but, while securing the property of the tenant, while making capricious eviction a very expensive luxury, it endeavoured to retain the good influence of good landlords and only to curb the bad influence of bad landlords. When, as I hope most sincerely and ardently, this good result shall have gradually extended itself over the country, that barrier which has so unfortunately been placed between the mass of the Irish people and their governors will be removed. I think that we have come to a very important era in Irish history. . . . I have said thus much to show that though much has been done in past years, much remains to be done. I alluded to sanitary reforms within the jurisdiction of the Corporation of Dublin, but if we look over the country we shall find many cases in which sanitary reform may be applied with great success. I often wonder that more has not been done in this country to improve the habitations of the poorer classes. I often wonder how a people well educated have borne the houses in which they have had to bring up their children. I most sincerely trust that those matters will receive careful attention, and if, by assistance from Government, or through Parliament, any remedy can be found, I can assure you that her Majesty's Government will most anxiously consider them and the means for removing the bad effects which they produce upon the country. These measures

require very careful consideration and attention; and I hope I shall not be misunderstood when I say that we require a time of peace and quiet in order to carry out these reforms. Too often in Ireland, I am afraid, when one grievance has been redressed, and one agitation stopped, another agitation has sprung up! I sincerely trust and believe that we are not entering again into a phase of that sort, but that all men interested in the welfare of the country will join hand in hand, and unite in the promotion of measures which can satisfactorily be carried for the welfare and improvement of the country. What I think we do want is *united action*; not only united action among Irishmen—and that is most important—but united action with Englishmen and with Scotchmen. Let not the people of Ireland—I do not believe that they think so now—but let them not think as they did in former times, that because there were certain injustices committed and permitted by the English Parliament, they will not get redress now. I feel confident that any just redress will be *carefully considered* by the English people and the English Parliament. I know many men in England who are *ambitious* to serve the interests of Ireland as they would the interests of England. We welcome in England Irishmen in almost every profession; we find Irishmen shining in almost every profession in the country. I rejoice at that, and I hope that you will allow those Englishmen who have a strong and earnest wish for the welfare of this country to join you in any work which may promote your interests and prosperity.

THE GAS QUESTION.

THE Alliance and Consumers' Gas Company have given notice of their intention to apply to Parliament for an Act which will enable them (amongst other matters sought for) to supply gas of a less illuminating power than that at present supplied. Their customers have resolved to oppose the passing of the measure so far as regards the quality, which even now is not up to the standard (16-candle) agreed upon when the companies were amalgamated some few years ago, and a monopoly secured for the "Alliance." Several of our leading citizens have taken the matter up, and there is every probability of a rival company being at once formed, if the Directors of the "Alliance" cannot be induced to withdraw or completely modify their Bill. The current number of the *Oil Trade Review* contains an article on "Mineral Oil-lamps for Streets and Public Buildings." Our contemporary is of opinion that mineral oil is well suited for the lighting of towns and villages, and, with an improved method of burning, is likely to be adopted with economical results. On the dilution of gas with air, the *Review* says:—

"In too many cases the public are shamefully served by the gas companies. Much has been said about the dilution of milk with water, but it is not generally known that the gas which we buy by measure is often diluted with common air, or by the process of distilling out the final residual gases from the coke, which, when produced at a very high temperature, have scarcely any illuminating power whatever. Many gas companies use brick or earthenware retorts instead of iron; they are more economical, being more durable. The public, of course, have no ground of complaint against this; but there is an awkward concomitant. These retorts are liable to cracks and leakage. Now, a leakage may occur in two ways, outwards or inwards; if outwards, the gas company loses a part of its product; if inwards, the leakage consists of air, which enters the retort and mixes with the gas. But how can it find its way inwards? the uninitiated reader will ask. The answer to this question is, that in most—perhaps we may say in all—cases where earthenware or brick retorts are used, an exhausting apparatus is also used—that is, the gas, instead of being driven out of the retorts by its own elastic force, is drawn out by an air-pump, and with it air is drawn in through the joints or cracks of the brick or earthenware retort, and thus the consumer is seriously cheated by loss of illuminating power. This loss is far greater than the proportion of air that is

used in dilution. If we dilute milk with an equal bulk of water we obtain milk and water of just half the strength or nutritive value of the original milk; but if coal gas is diluted with an equal bulk of air, the illuminating power of the mixture is far less than half, as every scientific gas engineer knows perfectly well. In this way, and by the use of inferior coal, or by carrying on the distillation too far, we sometimes obtain gas of such miserable quality that we are compelled to use double quantity in order to obtain a fair amount of light. In large towns a check is put on this by the appointment of an official gas examiner, whose duty is to examine daily by means of the photometer the illuminating power of the gas supplied, and to register and report its daily value; but in our suburbs and small towns, where no such officer is appointed, we are at the mercy of the gas company, which, having no competition, can deal with us according to its own sweet pleasure."

MISCELLANEOUS.

ANCIENT CITY DOCUMENTS.—The following resolution was passed at the meeting of the Corporation on Saturday last:—"That the volume of historical and municipal documents from the archives of the City of Dublin, now laid before the Council, be referred to No. 3 Committee, with instructions to prepare a memorial to her Majesty's Government, requesting that the remainder of the interesting and valuable muniments, and records in the possession of the Town Council may be published without delay, and that this Council do express their satisfaction at the able manner in which Mr. Gilbert has discharged his editorial duties."

A NOVEL COMPANY.—The "Reformed Funerals Company" is announced, with a capital of £10,000 in shares of £5 each, the object being, it is stated, to provide plain but appropriate funerals, by the use of a novel and improved style of hearses and mourning carriages, and by dispensing with mutes, velvet horse-cloths, ostrich-feathers, and to conduct funerals with a degree of solemnity and decorum attainable under the present system, and at the same time effect a large saving of unnecessary expense. The name of the Dean of Armagh appears amongst the directors.

SAVINGS INVESTED IN IRELAND.—Dr. W. Neilson Hancock has furnished a statement of the savings invested in Ireland from 1860 to 1870. From this it appears that the deposits in Post Office savings banks were in 1862, £78,696; in 1870, £583,165. The Post Office savings' banks have had an uninterrupted progress since 1862, when they were first established by Government. The deposits in trustee savings' banks were in 1860, £2,143,284; in 1866, £1,540,578; and in 1870, £2,054,907. The aggregate deposits in savings' banks, both Post Office and trustee, were in 1860, £2,143,284; in 1866, £1,761,215; in 1870, £2,638,072. The deposits and cash balances in Irish joint-stock banks were in 1860, £15,609,237; in 1866, £20,957,098; in 1870, £24,366,478. The investments in Government and India stock, on which dividends are paid in the Bank of Ireland, were in 1860, £40,112,000; in 1866, £36,958,000; in 1870, £36,548,701. Doctor Hancock attributes this decrease to the increased amount of foreign investments held in Ireland.

A MOVE IN THE RIGHT DIRECTION.—Jane Collins, of Newmarket, appeared on summons to answer the complaint of Sanitary Sergeant Fay, of the A division, to show cause why a number of wretched and dilapidated houses in Skinner's-ale, unfit for human habitation, should not be closed up. Mr. Norwood, T.C., and Dr. Cameron appeared on the part of the Public Health Committee of the Corporation. It appeared that the defendant was the owner of the houses in question, which were infamous dens inhabited by the lowest and most depraved characters. It also appeared that the houses were in the most filthy and ruinous condition, and Dr. Cameron deposed that they were not fit places to herd the lower animals. Mr. Barton made an order that the houses should be closed up at once. It is to be hoped that a similar course will be adopted with regard to the noxious houses in Bull-lane, the headquarters of crime and vice in Dublin.—*Freeman*.

THE BORE THROUGH THE HOOSAC MOUNTAINS.—The wonderful bore of five miles through the Hoosac Mountains goes forward with persistent steadiness, and bids fair to be an accomplished fact in 1874, as promised by the contractors. It is already more than half way through. Some conception of the magnitude of this great work may be formed when it is known that at the west end the workmen have fully one-third of a mile of solid mountain above their heads.

A NEW ARTIFICIAL STONE.—A patent has been taken out by Mr. Frederick Ransome for a new material, composed of finely-divided silica in a soluble state, a solution of silicate of soda or potash, or a mixture of the two, with lime-burnt chalk or other material. When mixed, caustic soda or potash is set free by the action of the lime and combined with the finely-divided silica. The lime may be either quicklime, or partially hydrated, or in other forms, such as Portland cement. The result is to produce an artificial stone of great specific gravity, capable of taking a fine polish; and, when other substances are introduced, as can easily be done, a kind of scagliola is obtained, which, it is claimed, has the advantage of resisting the weather. The specimen we saw was a large step, in imitation of red Peterhead granite, the colour being obtained by a metallic oxide, and the appearance of felspar by the intermixture of small broken crystals of natural carbonate of lime. Greys and other colours can be similarly produced. The specification further includes some new combinations of the silicates to be used for lining vessels in use for acids and acid vapours, and also for the reception and transmission of heated air and gases.—*Builder*.

HOW "THE TIMES" WAS SENT TO PARIS.—Attempts to establish a ready communication between the beleaguered inhabitants of Paris and their relatives and friends beyond the German lines have given rise to many contrivances which are not unlikely to make a new era in the history both of aeronautics and photography. Among them may be mentioned the ingenious device by which the matter of two whole pages of the *Times* has been transmitted from London to Paris. This has been accomplished by photography. Those pages of the paper which contained communications to relatives in Paris were photographed with great care by the London Stereoscopic and Photographic Company on pieces of thin and almost transparent paper, about an inch and a half in length by an inch in width. On these impressions there could be seen by the naked eye only two legible words, "*The Times*," and six narrow brown bands representing the six columns of printed matter forming a page of the newspaper. Under the microscope, however, the brown spaces became legible, and every line of the newspaper was found to have been distinctly copied and with the greatest clearness. The photographs were sent to Bordeaux for transmission thence by carrier-pigeon to Paris. When received there they were magnified, by aid of the magic lantern, to a large size and thrown upon a screen. A staff of clerks immediately transcribed the messages, and sent them off to the places indicated by the advertisers. The success of this experiment gives rise to the hope that the new art of compressing printed matter into a small compass will not stop here. If a page of the *Times* can be compressed into a space little larger than that occupied by a postage stamp, the matter of an octavo volume might be made to cover not more than two of its own pages, and a library could be reduced to the dimensions of the smallest prayer book. What a relief it would be to the learned persons who frequent the Library of the British Museum if, instead of having to make fatiguing journeys from letter A to letter B of the ponderous catalogues of books, they had its many hundred volumes reduced to a space a yard square, over which a microscope could be hurriedly passed. Such suggestions are now occupying the thoughts of photographers.

MONSTER ORGAN.—The organ in the Royal Albert Hall, London, will be the largest and most powerful in the world, having 9,000 pipes and 120 stops, inflated by two steam engines built by Messrs. Penn.

QUEER CHRISTMAS GIFT.—A member of a church congregation in Newark, New Jersey, has presented it with a new pulpit as a Christmas gift.

RAILWAYS IN THE UNITED STATES.—In 1870 there were completed in the United States 5,570 miles of railroad, at a cost, including rolling stock, of £44,981,200 sterling.

NEW MODEL LODGING-HOUSE IN DRYGATE, GLASGOW.—This building, erected by the City Improvement Trustees, is now completed for the reception of lodgers. It consists of four storeys, the upper three of which are to be used as sleeping wards, while on the street flat are, on one side, the superintendent's quarters—his shop or office and dwelling-house,—and on the other the dining-hall, with a kitchen and scullery in rear, hot plate and heating apparatus. On each of the three upper flats there is accommodation for forty-eight lodgers. Each flat is divided by a middle passage or lobby into two wards, with two doors to each ward, opening respectively on compartments having bunks for twelve persons. The bunks are of wood, with the exception of those in one of the wards on the second floor, which are of galvanized sheet iron, and will probably be set apart for casual visitors. At the farther end of each passage conveniences are placed, and half-a-dozen cast-iron lavatories are provided for each flat, in recesses off the staircases.

THE INSTITUTION OF CIVIL ENGINEERS, LONDON.—At the meeting of this society on Tuesday, 7th inst., Mr. C. B. Vignoles, F.R.S., President, in the chair, twenty-eight candidates were balloted for and declared to be duly elected, including three members, viz.: Mr. Wm. Crouch, Resident Engineer, Glasgow City Union Railway; Mr. J. J. Montgomery, Town Surveyor and Engineer to Corporation of Belfast; and Mr. Charles G. Napier, Chief Engineer, Southern Division of Great Southern and Western Railway of Ireland. Twenty-five were elected as Associates, viz.: Mr. G. D. Atherstone, Graham's Town, Cape of Good Hope; Mr. T. Aveling, Rochester; Mr. C. Colson, Superintending Civil Engineers' Office, Portsmouth Dockyard; Mr. H. Crabtree, General Manager and Agent, Northern Railway of Buenos Ayres; Mr. A. M. Dunlop, Westminster; Mr. J. Eunsom, Engineer of Northampton Gas Works; Mr. M. J. Farrell, Wexford; Mr. G. Fowler, Resident Engineer of Hucknall Collieries, Nottingham; Mr. J. R. Freeman, Westminster; Mr. W. G. Freeman, Penryn, Cornwall; Mr. F. A. B. Geneste; Mr. J. M. Hawkins, Superintending Civil Engineers' Office, Portsmouth Dockyard; Mr. P. L. Henderson, East India Avenue; Mr. J. A. H. Holmes, Assistant Engineer, Carnatic Railway; Mr. J. J. Maclean, Carshalton; Mr. S. L. Mason, General Manager of North British Railway; F. I. Palmer, *Naw. Lieut.*, R.N., Lime-street; Mr. D. Pidgeon, Banbury; Mr. R. C. Reid, Edinburgh; Mr. T. M. Rickman; Mr. B. C. St. John, Resident Engineer, Great Southern of India Railway; Mr. J. Tomlinson, jun., Cardiff; Mr. D. D. W. Veitch; Mr. J. Waugh; Mr. F. G. Wynne. A report was brought up from Council stating that, under the provisions of Sect. IV. of the bye-laws, the following candidates had been admitted students of the Institution since the last announcement:—Messrs. R. de Arteaga, W. D. Campbell, E. A. Dunn, W. F. Garland, H. R. Kempe, H. de Q. Sewell, and J. Slate.

Of the prominent and prosperous newspaper publishers in Cincinnati, two are boiler-makers, one a carpenter, a fourth a shoemaker, a fifth a country schoolmaster, but not one a practical printer.

The *Printers' Circular* of Philadelphia has offered prizes to compositors for fast type-setting. The first prize is to be a solid silver composing stick; the second a silver medal, and the third a bronze medal. The competition is to be open to compositors throughout the United States and Canada, in towns or cities where printers' unions exist, and the trial is to take place May 10th next.

FROM LONDON.—Small-pox has spread so rapidly in the parish of Westminster that application was yesterday made to the Metropolitan Board of Works by the local authorities for permission to erect a temporary iron building as an hospital on the vacant land lying between Cannon-row and the Victoria Embankment. The matter was referred to a committee, with power to take the necessary action.

MODERN INVENTIONS.—That great invention the "*Chronograph*," which times all the principal events of the day, and has revolutionized and superseded the clumsy old-fashioned "*stop-watch*," seems likely to be eclipsed in fame by that still greater and more useful invention the "*Keyless Watch*." The fact of no key being required renders these watches indispensable to the traveller, the nervous, and invalids. The enormous number sent *even by post* to all parts of the world, is a convincing proof of their great utility. The prices at which they are sold range from 5 to 100 guineas. Thousands of them are manufactured by Mr. J. W. Benson, of Old Bond-street, and of the Steam Factory, Ludgate-hill, London, who sends post free for 2d. a most interesting historical pamphlet upon watch-making. Also a beautifully illustrated pamphlet of gold jewellery, chains, &c.

BANKRUPTS.

George Douglas, of 1 Anne-street, in the City of Dublin, builder, to surrender 14th February and 7th March.
William B. M'Master, of Clifton-street and North Queen-street, Belfast, in the County of Antrim, builder and contractor, to surrender 17th February and 10th March.

INSOLVENTS.

James Mitchell, late of Rathmichael, in the County of Dublin, contractor.
Jacob Lunn, late of Camden-street, in the City of Dublin, previously of Rathmines-terrace, Rathmines, in the County of Dublin, house-painter.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

The Subscription to the IRISH BUILDER is EIGHT SHILLINGS per annum, payable in advance.

Terms for Advertising may be known on application.

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CAST-IRON DOOR AND WINDOW HEADS.

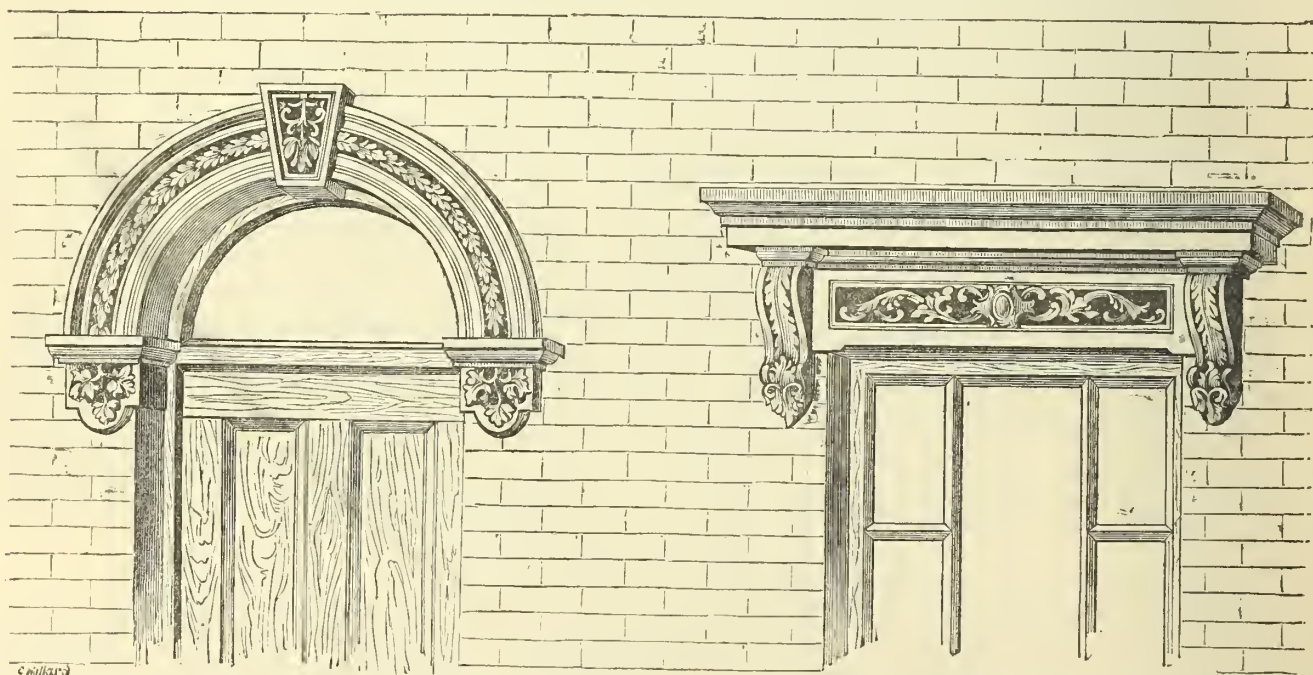
The attention of ARCHITECTS and all connected with the Building Trades is called to these elegant appliances, which will

SUPERSEDE THE USE OF STONE
IN MANY PARTS OF THIS COUNTRY.

A Variety of PATTERNS has been prepared, and

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THEY MAY ALSO BE HAD OF ANY RESPECTABLE IRONMONGER.



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34 in. and 36 in.

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The Irish Builder.

VOL. XIII.—No. 269.

Architects and their Designs.



WITHOUT entering into the question of the inherent right of the architect to retain a copyright in his designs (to which possibly we may return in a future number), we think the case is analogous with those which demand it for the artist, the composer, and the author, and we feel surprised the Institute of Architects have not taken up a matter in connection therewith, which, although it is difficult to deal with, and the evils of which are so many, is to us an anomaly and a positive infringement upon the natural rights of the architect. We mean the system which permits a client purposing to build obtaining plans with the intention, implied or otherwise, of carrying out the works under his own superintendence. An architect is, of course, naturally anxious to have his services secured, and it sometimes occurs it may not be worth while to superintend a small building at a remote distance, but he should remember his name and reputation are both identified with the proper discharge of the builder's duty. It frequently occurs, when plans are obtained in this way, the design becomes so mutilated in construction, that the author would fail to recognize what was intended to represent his own work, and the details are so carried out as to bear not even the most remote impress to the original idea of the designer, while the proprietor is constantly informing his friends he has built from the plans of Mr. So-and-so. Can anything be more monstrous? How would a painter feel at seeing his name placed at foot of a wretchedly executed engraved copy of his work? Or how would an author reconcile himself to the idea of his being paraded in the title-page of a book of which not one in every tenth line appeared in his MS.? We are aware there are builders who supply plans and carry out their own work, and that there are others who, for reasons of their own, dislike the superintendence of an architect. Let each have their way, but let architects firmly set their faces against giving plans (unless in very exceptional cases) that are not intended to be carried out under their personal instructions. If people will build without their assistance, and if they do not, ambition to leave the deeply trodden paths which produce incongruous piles of brick and mortar, meagre in character and tame in design, reflecting the paucity of idea of their constructors, let them do so by all means; or do like a certain amateur who, when his building was completed, found out he had not left sufficient room for a stairs, and was obliged to substitute step-ladders instead. But let not architects permit their plans to be mutilated by amateur builders, and the paternity of the design then placed upon them. With regard to the feeling which exists on this subject amongst builders themselves, we are possibly in the best condition for knowing their individual opinions, and

we can safely say all the more respectable portion of that body would be far better pleased in executing work in conjunction with an architect than otherwise, which, while it relieves them from responsibility, saves them from the numerous misconceptions which are constantly arising in the minds of those who are practically unacquainted with building operations.

THE PRESIDENT'S ADDRESS AND BUILDING SURVEYORS.*

NOT having had the pleasure of being present at the opening meeting of the session of the Institute, I looked forward with much interest to the report of the proceedings, and to the perusal of the president's address; and I need hardly say the important topics therein digested, with characteristic clearness and conciseness, not alone rendered it fraught with instruction, but opened a train for thought and discussion, which could not be without advantage to the general interests of the profession. That portion referring to quantities and measurements attracted my special attention, as bearing particularly on the branch to which I have devoted myself, and it awakened the idea that, however inadequately I might express my thoughts on the subject, it was one which would be of sufficient interest in itself to excuse my engaging the attention of this meeting.

In late years the practice of detailed bills of quantities being prepared for nearly all building works to be contracted for, has made rapid strides, approaching to the more developed system adopted in the sister countries, and leaving behind that which, while being in use only for extensive works, entered far less into minute detail—a necessity, probably, from being less removed from the ordinary custom of builders in preparing their own estimates. Whether this advance is an advantage to architects, their clients, and to builders, as also in the interests of commercial honesty, it does not appear to me to require much argument to show.

That many exist among the building community who are not well qualified to accurately arrive at the value of proposed works from the plans and specification submitted to them, may be assumed, from which cause tenders are either above or below the actual outlay required. With these, as indeed with the most extensive and competent builders, a liability to errors must exist, owing to their business requiring such a large measure of their time that the preparation of estimates cannot obtain the requisite attention. The result is in many cases—contracts are entered into under the value, which, when ascertained, offers to the contractor a tempting reason why he should endeavour to recoup the loss in some way, be it by “extras” or by the scamping of the work, and which, if given way to, becomes a fruitful source of annoyance to the architect, with the probability of dissatisfaction and increased expenditure to the client, especially as in such cases the schedule of prices is very vague. Fair remuneration for fair work is the guiding principle to produce harmonious action; and by having a carefully prepared bill of quantities a great obstacle is overcome, carrying with it, as it should, the belief that the actual work to be executed is therein represented, beside presenting an array of prices likely to meet any emergency in the event of alterations to the contract. Having illustrated that they are desirable on these grounds, I may adopt the same argument in favour of their being detailed to the full extent at present customary.

To architects the assistance of a surveyor is valuable in several ways. As a matter of fact, the latter has to wade through the almost endless variety of materials and labour that eventually resolve themselves into a finished building, leaving nothing unseen, nothing

omitted, that in the construction is required. As a stranger examining the plans and specification, through the progress of his work, he is enabled to draw attention to any portions of either not clearly explanatory, as also to descriptions omitted (if any), having same rectified in such manner that the architect must feel relieved somewhat in the responsibility resting on him, and all parties concerned must feel happier in the thought that many causes have been reduced by which it too often happens the difficulties of balancing the accounts rest on—namely, the differences of opinion as to the proper and fair reading of the plans and specification. The client also reaps some of the general advantage, for the architect is guarding his interests while obtaining for himself the means of amicably carrying out the contract.

It may next be considered whether the absorbing of the separate branch (surveying), as now established, into the duties of the architect would be judicious, and help to remove the difficulties at present felt. I candidly confess I do not believe it would. It would be a combination in which, on the one side, the ideal and the artistic should largely predominate in the mind, while on the other it is the dull monotony of calculations, the tedious unravelling of problems which necessitate patience and perseverance. To be skilled in architecture requires all the study and practice which a student can give, without more than incidentally acquiring an insight into the systematic principles involved in ascertaining the work to be executed, and in dealing with alterations arising in course of execution; while to be skilled as a surveyor also requires a great amount of study, besides a much more intimate knowledge of the working of a builder's business, both as regards the various means of best and most economically providing all materials, and of disposing of the same in the structure. The taste developed in the practice of the drawing office of creating in each successive design something new is rather antagonistic to that developed at the desk, in the incessant routine of calculations, in the solution of difficulties which sometimes arise as to the meaning intended, and the manner best suited to carry out the construction, and in the obtaining of the measurements where “extras” or “omissions” are in question. The surveyor, in adopting that branch of the profession, must have a fancy for figures, and probably one for argument, while finding that his talents, such as they may be, are devoid of that taste and inventive turn essential to progress as an architect.

As regards the idea of the architect having a deputy to perform those duties, I have grave doubts that it would be found to work well. Of course it is quite feasible to have the quantities issued in that way, but I conclude the builders (who have a just claim for consideration) would urge the attachment of same to the contract, and in that case would such deputy be found equal in discussion on all questions arising with the independent surveyor, who must possess a greater range of experience by contact with every description of character and document in the varied range of his practice?

I must, therefore, with all deference and respect for the view expressed by our worthy president, dissent somewhat from his recommendation of combining the duties of the surveyor with that of the architect, except so far as it suggests the employment of a separate party. As to the responsibility attaching directly to him, or to the architect who employs him, I will speak again. That the combining of the two branches is the custom in many parts of England, I believe; but the fact of its existence is no proof that it does not require alteration, or that it is better than the separate system adopted in London, which may be said to be the scene of the largest experience, and from which naturally a strong precedent may be taken; and indeed it may be useful here to remark that the Public Works Department in London recognises the utility of employing independent parties, instead of having same

* Paper read at meeting of the Royal Institute of the Architects of Ireland, by Mr. J. M.D. Bermingham, Associate, Feb. 16th, 1871.

on their staff. With the Scotch custom I am not much acquainted, and cannot offer any comment; but I have known many cases of quantities being supplied by Glasgow surveyors (at the instance of the architect), and indeed have seen same placed in the hands of Irish builders who were not well versed in the technical terms peculiar to Scotland, and these quantities had as a heading that "neither the architect nor the surveyor held themselves responsible for their accuracy"—this, too, for work valued at from £8,000 to £10,000, and for which no specification had been submitted to the parties about to tender, compelling them thereby to accept a document, the accuracy of which they had no means of testing. Recently I have seen a letter referring to the Glasgow architects' custom, from which it appears the quantities are used principally as a schedule of prices, and that the whole work is measured at periods during the course of erection, as may be most convenient, the contractor being paid, according to the schedule, for all works over that returned in original quantities, and having deducted all under amount therein represented. The only way he can absolutely lose, therefore, is by undertaking work at too low a price. The payment for measurement of executed work is defrayed, half by employer and half by contractor.

There appears to me many good points in this principle, recognising, as it does, the honesty of paying for work done if same has not been included in the data from which the lump sum was arrived at, and *vice versa*; but though this plan would largely increase a surveyor's duties, I cannot fairly satisfy myself that it is the most desirable. Would it not be time enough to incur expense of this kind if the contract was departed from, in which case the amount of departure could be ascertained without the necessity of a total measurement? There evidently exists a strong confidence in thus mutually abiding by the impartial judgment of an independent surveyor, as to the quantity and value of the works executed, and from it I would draw the inference that the aim of the proposal in the address—which portrays to my mind the adepting of some system by which the abuses of the existing arrangements, as carried out among us, would be removed, and a blow struck at the root of the evil—can be obtained by a simpler process, with the probability of its being quite as effectual. Here it is opportune to ask could not this Institute ascertain from corresponding bodies in England and Scotland the practices that exist among their members, and the effects? It would be highly desirable, and would materially assist in arriving at the soundest method obtainable, and which should merit the sanction of this Institute.

Having endeavoured to show that the preparing of detailed estimates and the measurement of work executed are essential, as also that it would not be expedient to have same carried out under the immediate control of the architect as a part of his duties, it may next be considered what steps are necessary and practicable to operate successfully in procuring a firm basis by which contracts can be entered into and completed with an honest impartiality, and to the comfort and satisfaction alike of all concerned, and especially to improve the confessedly unhealthy position and relations of the independent building surveyor.

That the latter, in many cases, is looked on as an unwelcome introduction, is no doubt a fact; but, though much may be deservedly said against him *under existing arrangements*, he is on the other hand made to bear burdens not properly his own. I attribute this to the most unpleasant position in which he is now placed. He is not supported by his natural ally, the architect, and is barely recognised except as the servant of the builder. Why is this? Is it because in the main he is employed by the contractor, and, in the honest protection of interests entrusted to him, falls foul of the architect? Is it because in points of dispute he sometimes is enabled to prove that certain claims must be allowed—claims which increase the expendi-

ture to an unlooked-for amount? Or is it because there is an impression that in preparing the original bills of quantities, the tendency, unavoidable though it may be, exists of measuring same "full" (as it is technically called), thereby increasing the amount of tenders to the prejudice of the client, and widening the difference between same and the approximate estimate of the proposed works? Among these questions may be found some idea of the reasons that have brought about this state of things; and with a proposal before you of re-uniting that branch to the others of the profession, it seems rather strange that within the lapse of a comparatively short time such a feeling of estrangement should be engendered by the separate practice. Does there exist now a greater proportion of disputes than formerly by which this feeling would have been encouraged? My experience does not enable me to distinctly say; but it would be worthy of reflection if such were the case.

Now I do not for a moment desire to exculpate surveyors: some of them are, to my mind, largely to blame in having brought about their present position; but I must express it as my belief—and I trust the members of this Institute will pardon my presumption—I must, I say, express it as my belief that architects are not without some responsibility in such being the case. Moving in the higher branches of the profession, with influence of no small degree in regulating all matters in connection therewith, and as arbitrators between the public and the contractor, I humbly submit it was their place to inspire confidence in the class risen up to discharge the duties laid aside by themselves, and to have used their influence to prevent classes creeping in which have eventually created the present unhealthiness.

The surveyor, as expressed by the president, is, in common with all the rest of the world, liable to err; and this is not to be wondered at when you think of the great division of his labour, the numberless items which, while essential to the carrying out of the works, are arrived at by continued strain on the memory—by, in fact raising the edifice in his mind; the systematic care required in transferring to paper all the items occurring in so doing; remembering also that by far the greater liability accrues to him from forgetting something altogether, or in part, than from returning same too "full." Considering these matters, there must be an instinctive inclination towards returning each item a little "full" in order to protect from loss the people with whose interests he is entrusted, as he finds, on entering the pursuit of his business, that he has a larger share of support from the building community than from the public, or the architects who represent them.

Where work is advertised, every class of builders may come together; as also it may be the case in limited competitions, where the greatest strictness is not pursued. So long, therefore, as architects stand aloof, and that the present system exists, the tendency with the surveyor must be to strain the mind's view of the impartial and just.

With the adjusting of final accounts the surveyor becomes much associated, and unless when employed by and between the parties concerned he should not be looked on as an arbitrator, either in theory or practice. In rare cases this does occur, and the result I am somewhat sanguine goes to prove that the mutual confidence has not been misplaced, that an impartial and fair view is striven to be taken of the meaning and construction of the contract, and the various documents that form part thereof.

On the other hand, when the surveyor is employed either to measure "extras" and "omissions," furnishing the contractor's account, or to check same on the part of the client, when submitted, he at once loses any claim to the position of an arbitrator, except so far as consists in watching the interests of his client. The position of an arbitrator in this case is different to that ordinarily understood, because an "arbitrator," in the strict sense of the word, only

acts when a dispute has arisen which he is called in to assist in settling; but in this case no dispute arises until after the larger portion of his duty is performed. Indeed I cannot see that the expressive term applied in the address—the "attorney for plaintiff"—suggests any position inconsistent with what should be his duty. Is it not quite reasonable to suppose his abilities should be exerted for the full advantage of the party who place their interests in his hands? Individually, I cannot divest myself of the idea that he not alone ought, but is bound, to exercise every proper and legitimate means which his ability, care, and study can produce, of putting forth and supporting the claims of his client, whether he be "plaintiff" or "defendant," and that he is justified in adopting and arguing in view of the most favourable reading, when any portion of the specification is indefinite or capable of different constructions. Of course the theory of using every possible position of standing as a ground for making dishonest and absurd claims I would not sustain for a moment.

As before remarked, architects are not without some responsibility for the very unwholesome state of things which undeniably exists. Is it not an unpleasant fact that the public regard an acquaintance with stone, brick, and mortar as a species of speculation in which all their calculations are only ideal? Are their professional advisers in no way accountable for this? Is it not characteristic of some of the body that they aim at obtaining the greatest accommodation and effect for the sum proposed to be expended, and does it not often occur in that endeavour the mark is over-reached? With this result, that when the tenders are received, and the works proceed, dissatisfaction ensues, the client being put to a greater outlay than he desired.

Another not unusual cause arises in the plans and specification not being clearly defined. The surveyor is, therefore, obliged, in many cases, to decide for himself between different views, and, as a necessity, has to adopt that which will prevent his client from subsequent loss; while, had sufficient details of work and specification been furnished, he could better perform his duty, while the tenders would be reduced by a perceptible percentage.

I may, for example, and with the permission of our respected president, illustrate the case by one which he was called on to decide. A paragraph in a specification, describing excavation, stated if rock was met with in trenches an altered mode of procedure was to be adopted. No reference was made to a separate price for same. Another paragraph, describing the sinking of a well, stated separate prices were to be given for sinking it in rock should same be met with. In endeavouring to arrive at a just conclusion as to the value of the excavation in trenches, I returned in estimate this excavation in same manner as I did for well, giving a separate price for same in rock, if required. Rock was met with in the trenches, and though I argued in favour of the view taken on behalf of the contractor, it was decided that the paragraph threw the onus on him of ascertaining whether such would occur or not, and consequently no allowance could be made for excavating the rock, though it was evidently being done at 4d. per yard cube, the price for clay! Of the strict correctness of the decision I was fully convinced by the reasoning, but it nevertheless appeared a hardship.

Another cause, and one prolific of unpleasant consequences, occurs in this very matter of throwing the onus on the contractor, and binding him up with all kinds of conditions and clauses—no doubt justifiable, as intended against those who cannot act uprightly, but certainly not necessary if a proper and judicious selection be made of men of respectability and character. He is compelled to give security for the performance of his portion of the contract, while the party with whom he makes same, though possibly not a whit more honest or safe, gives none for the performance of his, viz.—the

payment, and this may account for the general preference of executing contracts for and with public bodies in contradistinction to private individuals. The contractor is obliged to perform everything mentioned (and including with same various contingencies) for a stipulated sum. It is not known, for instance, whether the foundations can be commenced at a certain depth shown, and he is asked—in many cases compelled—to proceed to this depth, or such further as may be found necessary by the architect, and for which no extra need be claimed. He is sometimes asked to try for himself what may be expected in same; perhaps his doing so involving travelling a distance and the incurring of much expense, for which no one is to recomp him. He is bound to take down old buildings, to become responsible to all owners of the surrounding property, even though he uses every means which experience can suggest to protect same from injury, and which may occur from causes over which he has no control whatever. He is required to make good all connections to adjoining buildings whatever they may be. In fact, so numerous are such contingent clauses, that in few cases can a contract be entered into where the party who makes same has not some game of chance which may end profitably or the reverse. He cannot, in the face of competition, where his probability of securing the contract rests on no firmer basis than eight or ten chances against one, expend both his time and his money in investigating carefully the different contingencies that may arise. He cannot ask the surveyor acting for him to do so, and even if either did, would it not still remain a game of chance, only lessened by what the experience of both would suggest.

Is this practice conducive to the healthy development of business, or founded on a spirit of equity? With all deference I must contend that it is not. It is productive of disappointment, disagreement, and wrangling, until nothing outside the strict letter of the contract will be thought of, and the settlement finally becomes one of trouble and perhaps litigation.

It is not equity. Who has a better right to defray preliminary expenses of this nature than the employer, for whose benefit it is, and who may, after causing it, alter his mind and cast all aside? It does not appear to me to be consistent with the maxim that "for fair work fair wages should be given." It creates a species of speculation resulting in a loss, or otherwise in unjust profit.

Why not have contracts founded on a firm and strictly definite basis? Why not the preliminary difficulties be disposed of by the surveyor, as far as possible, at the cost of the proper party—the employer; and such things as extra depth of foundations, increased expenditure in protecting other properties, the connecting staunchly of adjoining buildings, and other such considerations, be kept separate, to be paid for over and above the contract made, according to the actual outlay or value?

I would, if not too great a tax on your patience, briefly refer to the questions of the surveyor's responsibility and charges. To what extent the surveyor is under the obligation of the former is a point most unsettled, as far as I can ascertain, even in London practice or as sanctioned by law; and with all the faults of the existing system, it is difficult to consider how he could honestly discharge his duties and feel the responsibility resting on him. The tendency must be towards relieving himself of it and its attendant possible losses by accepting the most costly views where more than one could exist. With the liability to err, over which he has no possible control, and so well illustrated in the address—having the feeling that he may be held accountable, when he has tried every means that human patience, experience, judgment, and care have led him to adopt,—it becomes a very serious consideration, and it does not seem to coincide with the equitable and just. Why should either the builder or surveyor be asked to pay for work which, though omitted from the bill of quantities,

from which the total value is derived, the employer is directly receiving the equivalent for? Why should he not honestly pay for it?

This position should be considered, and such an unfair weight definitely shifted from the surveyor's shoulders.

On the subject of charges little can be said. Among surveyors, as among architects and every other class of men, you will find some who will undermine any regulated scale, and others, not content with it, will adopt one more remunerative, and what they consider themselves entitled to for the services they render. You cannot control this, but you can, as suggested, render a permanent service by giving forth to the profession—under the most important professional body constituted in this country—a scale of fees ascertained from the practices and customs extant. It would be a reference in all friendly differences of opinion, and would, I have no doubt, contribute much towards prevention of law and costly arbitrations.

I must apologize for thus far trespassing on your attention and time, but the question is one surrounded by so many phases and difficulties, that it could not be more condensed. It is deserving of much consideration and discussion, and if I have in any way contributed aught to assist in so doing, I shall feel happy in the thought. In conclusion, permit me to offer a few suggestions, which I do with the greatest diffidence:—

Let every architect employ his own surveyor in all cases, and let him be paid either by his client directly, or through the architect.

Let fair, equitable, and definite contracts be formed, and the contractor be paid separately for all contingent works outside same.

Let the contractor have the option, before signing the contract, of assuming the whole responsibility of the surveyor's work, no errors in same to be of any avail, or claim against any party concerned; or let him sign it, having the bill of quantities forming part of contract to be used as a schedule of prices, and in case errors occur, the amount of same to be either added to or deducted from the contract amount when they exceeded a certain percentage of variation.

Let sufficient details be given beforehand by the architect. Let him examine the plans and specification when they pass from the surveyor's hands, carefully noted and revised by him.

Let all variations from the contract be arrived at by the surveyor independently between party and party, unless in such extensive works where two surveyors would be advisable.

Let a spirit of mutual confidence be inspired among all concerned by having the contracts on a fair, equitable basis for both parties, by careful selection of respectable and upright contractors, and by reposing confidence in surveyors who seek to impartially administer the trust placed in their hands.

Let every question of importance be decided by the architect as an independent arbitrator, when worked out and referred to him by the surveyor; and in any case where the parties concerned will not abide by the decision, let a clause in specification refer same to the friendly arbitration of members of the Institute chosen by each, a proceeding found to work so peacefully and amicably with merchants and their Chambers of Commerce, thereby avoiding all law.

Lastly, and above all, let there be unity of feeling and action in the general endeavour to eradicate the evils existing. Let some scheme be fostered that will carry us out of this difficulty, perplexity, and trouble into a future where the man who wishes to build a mansion can do so with the same feeling of confidence, security, and pleasure as he would the furniture to decorate it.

A NEW COVERING FOR ROOFS.

A MATERIAL for this purpose, which possesses many advantages, has been recently introduced by a Glasgow firm (Messrs. McIlwraith and Co.); it is manufactured from hemp, and is so thoroughly saturated with water-proof

coating as to render it altogether impervious to wet, therefore calculated to endure for an almost indefinite period, and altogether indestructible from the ordinary climatic effects we are accustomed to; and although it has undergone the preparation above mentioned, it is dry to the touch and may be handled with the most perfect impunity, while it will not soil in the least degree whatever it comes in contact with. One of its greatest recommendations is, that it does not imbibe moisture during the process of laying. From the absorbent qualities of felt, this often occurs, and to so great an extent that, no matter how well coated it may be afterwards, it speedily decays. It is also very much thinner, which produces an advantage in this way—in allowing a complete absorption of the coating material, which thus becomes an integral part of the fibre. When an additional coat, after laying, has been applied, and well sifted with fine sand, it becomes fireproof.

We find by the *North British Daily Mail* of January 18, 1871, that it has been extensively used in covering a number of temporary hospitals at Belvidere, on the north bank of the Clyde, about two miles from Glasgow, and, from the specimen submitted to us, we strongly recommend it for similar purposes. The price is about the same as asphaltic felt; but, considering the superiority of the material and its extreme durability, it must be vastly cheaper in the end. In our advertising columns will be found the address of the manufacturers.

CORRESPONDENCE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In your last number you gave a paper entitled "How Jack Plane became a Builder." If we look around the different professions—the bench, the bar, and medicine, we find a great many who have been enabled, solely by their own talents and industry, to elevate themselves from comparatively humble positions, and we have had instances in nearly our own time of architects whose beginnings were the jack plane, why, then, should building be exempt? besides, my impression is, men of this stamp are entitled to a vast deal more merit than those who are born "with silver spoons in their mouths." How many do we see in every calling, and who have been born to fortune, who cannot even maintain their positions? Possibly it is their lack of tact or talent, or it may be they are victims of untoward circumstances, over which they have no control; be this as it may, I think he who raises himself by honourable means is to be admired, and far more preferred than if born to nobility. The inference to be drawn from your paper would be, that it is an easy matter to become a builder, and that little or no education is required for the purpose. The contrary is the fact. It may be comparatively easy to become one, but to be successful is altogether another matter; and although there are some very primitive and apparently ignorant men who practise the calling, they must, in order to succeed, be self-educated, if they ever mean to be considered even ordinary skilful builders. Like all other avocations there are different classes amongst them; we have in our midst several highly educated and intellectual men, one at least is entitled to write A.B., T.C.D., after his name, several C.E., and one who has certainly some claims to literary ability, being for many years a contributor to the periodical literature of the day.

In offering these remarks, my intention has been to shew that builders as well as the followers of every other profession and trade are raised, to use an Americanism, from different stages of society, and I think he who has honourably lifted himself from the humblest walk is infinitely more to be lauded than the reverse. My own earliest associations connect me with what is called middle class life, yet that does not forbid me from offering my meed of praise to him who has advanced himself to be considered possibly my equal, and, perhaps, in the eyes of the world, my superior.

A BUILDER.

A CHAPTER UPON ORDINARY SUBJECT.

PRINCIPALLY INTENDED FOR THE NON-
PROFESSIONAL READER.*

If there is any thing more than another which the uninitiated in building cannot understand, unquestionably it is *damp*, and it often puzzles even the most experienced. Damp may be either apparent or real. Apparent damp is produced by the condensation of the atmosphere upon a non-absorbing surface, and is possibly as injurious to the health of the inmates of a house as if it were arising from extraneous sources. The most familiar instance we can adduce of this description of damp is shown upon oil-painted walls; the temperature of the internal and external air being unequal, and both being loaded with moisture, it is condensed upon the surfaces of non-conducting matter. For our present purpose we will apply the terms 'conductor' and 'non-conductor,' more generally used in treating upon other subjects, although reversing their usual signification as applied to heat. By conductor we mean all porous bodies, such as brick and the softer descriptions of stone; the term non-conductor we apply to the more compact and closer texture kinds of building material. Walls built with calp, which is the stone raised in the quarries in the immediate vicinity of Dublin, being of an exceedingly close texture, and some of the more compact limestones, are thus non-conductors, because they do not allow absorption, it is therefore unsafe to use them for internal work unless lined with brick or battened over, which allows a space for the permeation of air under the lath and plaster, which is to be its finishing coat. Mountain granite, the more porous lime and sand stones, being conductors, do not produce this defect in building. A hard and partially glazed clinker brick often causes a damp spot upon a wall, which even the most experienced cannot explain unless they were aware of the defective brick being built in the work. Who is it who has not remarked the flagging on ground floors (say Carlow flags for instance), even some days preceding rain, teeming with moisture? The atmosphere is then loaded with vapoury matter, and it is either absorbed or condensed, according as it meets a conducting or non-conducting surface. We have been often shewn lead pipes conveying water through perhaps a dwelling-house dripping all over, and we have had much difficulty in convincing our friends they were not leaking. Lead is a non-absorbent material, and the water passing through it rendering it much colder than the surrounding medium, the atmosphere, as a matter of course, becomes condensed upon it. Damp which is produced from external causes, either from the leaking of the gutters of a roof, the overflow of a down pipe, or rain beating through a wall, the cause of which has been perfectly removed from the outside, and which during fine weather is apparently altogether exsiccated, strange to say for a very considerable period afterwards, whenever the atmosphere becomes moist and heavy, shews damp upon the inner surface nearly as great as ever, varying, of course, according to the interior temperature of the building; because although the inside of the wall has dried out, the centre or hearting is still fully charged with moisture, and consequently unable to absorb more, the atmosphere therefore becomes condensed

upon the surface. There are many people whom it would be difficult to convince of this, nevertheless it is strictly true.

There is another cause of damp produced upon the well-known system of capillary attraction, and which is especially objectionable because its prevention is so easy, and is therefore the more blameable. All buildings erected upon hard tenacious clays are peculiarly liable to it. It is a well-known principle in hydraulics that water will rise, wherever it can escape, to the level of its source, and to a much higher level by capillary attraction. For example, hang a thread (a worsted thread is best) with the end immersed in a tumbler of water, which will, unless the thread is of too great length, rise to the top; let the end be then passed over the upper edge of another vessel placed at a higher level, and if sufficient time is allowed you will empty the tumbler upon the syphon principle reversed,—this is what is called capillary attraction.

It would be desirable, but it is not always practicable, that all foundations should be surrounded by a drain, say of 4-in. pipe, with the joints uncemented, and laid fully as deep as the lowest point of the footing course, covered over with broken stones, and connected with the sewerage by a large syphon trap; this will arrest the springs rising in winter outside the boundary of the house, but in the end it is but an auxiliary, and will not be effective in prevention without further precaution; for this purpose a damp course is absolutely necessary, for which a sheet of the thinnest lead laid thoroughly over the footing courses is the most suitable, but it is far too expensive to be used in general practice; many substitutes are used, as a coating of coal tar, a coating of asphalt, a layer of slates, and, latterly, terra cotta perforated slabs. A coating of coal tar is all but useless, because even supposing sufficient care has been taken in completely filling the interstices, which would be next to impossible, the bedding of the next course immediately displaces it. No one ever yet saw a mason set an ashlar, an ordinary quoin, or a piece of rubble at the first attempt; in the act of setting he disturbs the coating of tar underneath, and produces numerous interstices therein. Are not the stones occasionally lifted from their bed to get an additional blow from the hammer, the chisel, or the punch, as the case may be, and rebbed? Where then is the coating of tar? Asphalt is better, still it is open to objection, because even with the ordinary settlement of a building openings are produced; besides, to be properly executed, it is necessarily expensive. Slates are altogether a mistake,—few of them will remain whole after they are weighted. Perforated terra cotta slabs are also open to objection; the mortar joints act as conductors, and the perforations sooner or later become choked, and while they remain open they are a refuge for the numerous tribe of *coleoptera* and their congeners, the larger description of millepedes. The simplest and, at the same time, the least expensive description of damp course would be a sheet of asphalted roofing felt, thoroughly coated upon both sides with coal tar, and laid as lead would be, the cost of which, in a building, would be but nominal. This the mason cannot displace, and settlement would have no effect upon it: if properly prepared, the material will be as durable as the building itself. We have lately seen an improvement upon asphalted felt in a roofing material manu-

factured from hemp by a Glasgow firm (M'Ilwraith and Co.), which is but 9d. per square yard; it is thoroughly and imperiously coated on both sides, and would need no further preparation; it is also much thinner, and would appear to be more effective than the ordinary roofing felt. Referring to damp produced from external sources, we will avoid inferior construction of roofs, slating, gutters, &c., as these every one in connection with building should be a judge of, but there are many buildings damp where either too much or too little care has been used in the construction of the walls. In ashlar work it often occurs that the joints are bedded so close as to leave no room for the intervening bed of fine mortar, and frequently they are bedded in pure lime putty without the smallest admixture of fine sand; now putty mortar takes no more bond than yellow clay, and is therefore useless as bedding material. We remember an instance of this occurring in an Ordnance contract, where the clerk of works insisted the joints should be so close that he could not introduce the blade of a large penknife. The building was completed, but is so thoroughly damp as to be nearly uninhabitable. Rubble walls are frequently damp for want of proper attention in hearting, and no matter how well disposed both architect and contractor may be, it will often occur from the negligence of the workmen. This may in some measure be corrected, by having more attention devoted to the composing or cementing the exterior, but it is not in all cases effectual, and possibly never will be until after it has received a sufficient number of coats of oil paint, so as completely to fill up every interstice through which water can penetrate. It has often surprised us the mere pin-holes through which rain will be beaten in considerable quantities by storm. Nine-inch exterior walls are never dry, because every header brick conducts the rain right through; however, as 9-inch outside walls are not used in practice, except in cheap suburban houses, we need say little upon the subject. Eave gutters are frequently a prolific source of damp. Some consider down pipes so unsightly that they are placed at considerable distances apart, and no matter how large the capacity of the eave gutter may be, they are liable, at particular seasons, to become choked. The farther apart they are the greater the evil produced by overflowing and saturating the walls.

Sea sand, with certain exceptions, is a fruitful source of damp when used for internal work, yet many highly intelligent people assert it may be used with safety, provided proper precautions are taken. Every one knows that a pebble picked up from the sea beach is saturated with salt, and, therefore, that sea sand is similarly situated. It needs no teaching to shew that salt, of all natural productions, has the greatest affinity for moisture; place it in any form exposed in a damp atmosphere and it becomes deliquescent, shewing thereby that the vapoury particles of our atmosphere are rapidly attracted and become condensed upon it. Yet it is used, and we can point to a large villa residence, erected near Killiney within the past few years, the mortar for the walls of which is wholly prepared with sea sand. It was directed that it should be well washed with fresh water, but we all know with what care these instructions would be followed up even with the most painstaking contractor, and many may believe it would take months of

* Written for the proprietor of the IRISH BUILDER by Wm Hughes, Esq.

immersion before the salt contained in the sand would be altogether extracted. True it is, the walls of the principal apartments are battened, and lathed, and plastered, but it is questionable whether this will not have to be renewed within a few years. Sea sand, from its nature, being totally devoid of loam, forms by far the best and most durable mortar, and becomes converted into a harder carbonate of lime than river sand will produce, from the fact of its drying less rapidly and absorbing carbonic gas from the atmosphere more slowly than the other; it also forms a more dense and compact mass, and if there was no other reason, this would be one why moist atmosphere condenses upon it. Although Arklow sea sand can be used with the utmost safety, mixed with lime putty and plaster of Paris, for coating in imitation of Portland stone for interior walls, because the quantity of salt contained in homeopathic particles of sand (if we may use a medical term) is so minute that it is completely absorbed in its surroundings, and forms a durable and lasting cement. We cannot, as a general rule, suggest that sea sand should be used in any other form except for external walls and external plastering, yet one of the most intelligent architects of the present day affirms that if it be carted in heaps and exposed to a winter's rain, being occasionally turned over in the interim, it is altogether deprived of its saline properties; but, being in favour of a perfectly dry house, we would hardly risk the experiment in practice.

THE INSTITUTION OF CIVIL ENGINEERS, LONDON.

On the 17th ult. two papers were read before the above-named Institution. The first was "On the Archimedean Screw for lifting Water," by Mr. W. Airy. C. B. Vignoles, President, in the chair.

This communication was intended to supply information regarding the best form of the Archimedean Screw, and its effect when laid at different angles of inclination to the horizon. After suggesting that the previous neglect of this subject was probably owing to the mathematical and practical difficulties attending the construction of screws in the ordinary way, viz.: with the threads at right angles to the surface of the core, the author stated that he had adopted another principle of forming the spiral threads, which would simplify the work of construction and produce a more efficient machine. This was to make the spiral threads on the natural and developable system. If an annular piece of card, or tin, be wrapped upon a cylindrical core, having its edge retained in a shallow spiral groove on the surface of the core, it would naturally take up a fixed and determinate position, not at right angles to the surface of the core but inclined to it; and inclined to it at an angle depending only upon the inclination of the spiral groove on the core. The chief advantage of this spiral thread was that it could be made of a single flat piece of plate, and no work was required except to cut out an annulus, which when wrapped upon the core, gave at once the spiral surface; whereas the threads at right angles to the surface of the core could only be constructed approximately, by using a great number of small pieces. The developable threads also produced a more efficient machine than the threads of the usual form, as was shown by reference to tabular diagrams.

The first set of experiments was made with models of screws of different spiral angles (the "spiral angle" of a screw being the inclination of a spiral line on the core to the lines parallel to the axis of the core) having

only one thread a-piece, and the results of these experiments were given on the diagrams; but it was easily seen, that every screw ought to have as many threads as ordinary workmanship and convenience would allow. This was also shown by reference to the results of experiment; and it was concluded that to allow of easy fitting, riveting, and examination, the width of the chambers for a large screw should not be less than 18 inches on the square. This condition was used to regulate the number of threads for the models for the second set of experiments.

The second set of experiments was made on six models, whose spiral angles were 20°, 30°, 40°, 50°, 60°, and 74°; the number of threads being varied from four to one. The models were successively inclined at different angles, and the water contained by each model in its different positions was measured by a measuring glass. These experiments formed the basis of the investigation, and it was deduced from them:

- (1.) That the quicker the spiral, the flatter must the machine be laid to produce its best effect;
- (2.) That screws of quick spiral angle, when laid at their best angle of inclination, delivered a far greater volume of water per revolution than those of slower spiral angle when laid at their best angle of inclination.

In order to ascertain the most economical form of screw, it was necessary to investigate the loss of power due to the internal friction of the water and the external friction on the gudgeons for each machine. This was done by calculation, and the results were obtained numerically for screws of certain specified size, lifting to a height of 10 feet. The frictional drawbacks thus obtained were applied to each machine when laid at its best angle of effect, and the efficiencies of the different screws were then calculated. The result showed, that the machine whose spiral angle was 30° was the most economical, but that the machine whose spiral angle was 40° approached it very closely. The best angles of inclination for these two machines were respectively 25° and 30° to the horizontal. In the most favourable case, the useful effect of the screw appeared at 88 per cent., and it was concluded that, after making allowance for certain small losses referred to, the useful effect of a well-constructed screw should not be less than 85 per cent.

Reference was then made, by way of comparison, to other machines commonly used for low lifts, viz.: suction pumps, centrifugal pumps, open Archimedean screws, scoop wheels, chain pumps, and Persian wheels; and the paper concluded by pointing out the various advantages of the Archimedean screw, more particularly as regards its durability, simplicity, and useful effect.

The communication was illustrated by the series of models from which the results were obtained, and also by a screw, 5 feet in length, constructed on the system of threads advocated by the author. A model was likewise exhibited, to show the improvements which might be applied to obviate the defects of scoop-wheels, as at present constructed and mounted.

The second paper read was on "Centrifugal Pumps," by Mr. D. Thomson, Assoc. Inst. C.E.

In this communication a short sketch was given of the early history of centrifugal pumps, and it was stated that their practical introduction as useful machines dated from the Exhibition of 1851. The author attributed to the late Mr. J. G. Appold, Assoc. Inst. C.E., the principal merit of bringing them to such a stage of perfection as to make them generally available. Mr. Appold made numerous and careful experiments, and the results thus arrived at had been confirmed by the author's experience.

The practical rules of construction were thus stated:—

1°. The arms of the fan were curved backwards, according to principles of construction

which were explained by diagrams. The depth of the fan was one-fourth of the diameter, and the central opening for the admission of the water was about nine-sixteenths of the diameter. The space allowed in the case round the fan should be of ample dimensions.

2°. The best duty was given when the speed of the periphery of the fan exceeded the velocity of a falling body, due to the height of the lift, by from 6 feet to 8 feet per second.

3°. A fan 12 inches in diameter, and proportioned as described, would discharge 1,200 gallons of water per minute.

4°. If the diameter of the fan was varied (the speed of the periphery and the lift remaining the same) the delivery of water was increased or diminished directly as the square of the diameter.

5°. When a centrifugal pump, properly proportioned, was worked by a steam engine, the duty that might be realised ranged from 55 per cent. in the smaller sized pumps to 70 per cent. in the larger machines, of the power shown by the indicator diagrams.

The theoretical principles on which the curves of the arms should be formed were explained and illustrated by diagrams, and easy methods were described of arriving at close approximations to these curves by arcs of circles. The conditions under which centrifugal pumps could be most advantageously used were stated to be when the lifts were low, not exceeding 30 feet, and especially when the lift was also variable, as the centrifugal pump had a self-adjusting property, by means of which as the lift diminished the quantity of water discharged increased. The tabulated results of experiments made with centrifugal pumps for emptying graving docks at West Hartlepool and at Leith, showed this self-adjusting quality of the pump, and generally illustrated the principles explained in the paper.

Drawings were given of three different kinds of centrifugal pumps that the author had made, adapted for different circumstances, and the special advantages of each were explained.

A note was appended to the paper, embodying a theoretical investigation as to the static height of the column of water that a centrifugal pump should sustain by a given speed of the fan, and this was shown to be expressed by the formula

$$S = 9.82 \sqrt{h}$$

where S = the speed of the periphery of the fan in feet per second, and h = the head of water supported by the pump in feet, no water being discharged.

It was shown that, owing to the water exterior to the fan being carried round by fluid friction, the speed of the periphery must always be less than this, and in the smaller pumps it was found experimentally to be more nearly expressed by the formula

$$S = 8 \sqrt{h}$$

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

On the evening of Thursday, the 16th ult., there was an ordinary general meeting of the Institute. Mr. James H. Owen, M.A., president, in the chair.

The assistant secretary read the report of the architects appointed to examine the set of drawings of Christ Church Cathedral, submitted in competition for the Fitzgerald Prize by Mr. William Butler, associate, to whom was awarded the medal.

Mr. James M'D. Bermingham read his paper on building surveyors (see page 55), on which a warm discussion was entered into by the chairman, Messrs. Symes, Geoghegan, Franklin, Stirling, &c., fellows.

Mr. Butler then read his paper descriptive of his drawings, a portion of which will be found on another page.

Votes of thanks were passed to Messrs. Bermingham and Butler for their papers, the discussion on the former of which was adjourned till the March meeting.

The following report of the examiners (Messrs. J. R. Carroll and G. C. Ashlin, fellows) appointed by the council, on the measured drawings of Christ Church Cathedral, submitted for the Fitzgerald medal, was read and confirmed:—

"Having compared the drawings of Christ Church Cathedral made by Mr. Wm. Butler, associate, with the buildings, we consider they reflect much credit on him for their general accuracy. This accuracy could not have been attained without a careful study and measurement of the buildings, and we therefore gladly bear testimony to Mr. Butler's industry and skill. The ground plan and plan of the crypt are especially worthy of notice. The sections and elevations are also carefully drawn. As regards the details, we fear that they did not receive an equal amount of attention with the other drawings, for they in some measure lack the spirit and artistic treatment so necessary for conveying a true impression of Early Gothic work. We desire to direct Mr. Butler's attention to this point, with the hope that he may be induced to study good examples of Gothic details such as some of those in this cathedral, as he will thus be enabled to add to the interest of any future drawings he may make of ancient work. We congratulate the Institute on having elicited this valuable record of our metropolitan cathedral."

CHRIST CHURCH CATHEDRAL.*

BEFORE attempting to sketch the history of this cathedral, it may be to some degree interesting to go back to the earliest records (of the Christian era) of Ireland itself, and thence briefly trace the onward growth of Christianity, and its development in this island.

It may be remarked that St. Patrick was not the first person deputed by the Pope to recommend the Christian faith to the Irish. The venerable Bede affirms that "Palladius was the first bishop that was sent by Pope Celestine to the Scots." The arrival of this prelate in the island was in the third year of the reign of Laogaire, which was the year preceding the landing of St. Patrick as his successor, on the same important negotiations.

Palladius, in his expedition, was attended by twelve clergymen, and landed in the north of Leinster. Here he erected three churches, which he consecrated and dedicated to three eminent saints. Having finished the consecration, and before making any considerable number of converts, he was seized by a violent bigot for the Pagan religion, and he and his followers were obliged to abandon their design, and fly for their lives.

Before noticing St. Patrick's visit to Ireland as her apostle, it may be well to ascertain what is known of his early life and origin. In an old manuscript entitled "The Life of St. Patrick," it is stated that "Patrick was a Briton born, and descended from religious parents." It also asserts that when Niall, the hero of the nine hostages, undertook the expedition of settling the tribe of the Dailriada in Scotland, the Irish fleet sailed to the place where St. Patrick resided. The passage runs thus:—

"At this time the fleet out of Ireland plundered the country in which St. Patrick then lived, and, according to the custom of the Irish, many captives were carried away from thence, among whom was St. Patrick, in the sixteenth year of his age, and his two sisters, Lupida and Darerca; and St. Patrick was led captive into Ireland, in the ninth year of the reign of Niall, King of Ireland, who was the mighty monarch of the kingdom for twenty-seven years, and brought away spoils out of England, Britain, and France."

By this expression it is to be supposed that Niall of the nine hostages waged wars against Britain or Wales, and perhaps made a conquest of the country; and it is more than probable that, when this Irish prince had finished his design upon the Kingdom of Wales, he carried his arms into France, and invaded the country at that time called Armorica, and from thence he led St. Patrick

and his two sisters into captivity. And this I am rather induced to believe, because the mother of St. Patrick was the sister of Martin, the Bishop of Turin in France; and it is mentioned in an ancient Irish manuscript, the authority of which cannot be disputed, that St. Patrick and his two sisters were brought captive into Ireland from Armorica, or Brittany in France. It is evident, likewise, that when Niall, the King of Ireland, had subdued the Britons, he despatched a formidable fleet to plunder the coasts of France, and had so great success that he carried away numbers of the natives with him into captivity, one of which it is reasonable to suppose was the young Patrick, who was afterwards distinguished by the name of the Irish Saint.

About A.D. 427 Pope Celestine commissioned St. Patrick (now sixty-one years of age), and sent him to Ireland to propagate Christianity and to establish the inhabitants in the belief of the gospel; and resolving to prosecute his designs with vigour, he brought over with him twenty-four of the Roman clergy to assist him, ordaining laws for the regulation and disciplinizing of his converts. By the order and prudent management of the saint there was not the least part of the whole kingdom that did not abound with religious persons of exemplary piety.

St. Patrick died A.D. 491, in the 122nd year of his age, having laboured for sixty-one years propagating the Christian faith in Ireland. From this time Christianity steadily progressed; and we find Irishmen, renowned for their piety and learning, engaged spreading the faith on the shores of Scotland and even England. Such was the learning of Ireland from the sixth till the eighth century, that most of the Christian youth of Germany and Gaul were sent here for their education, and we continually hear Ireland referred to as the "Island of Saints."

We read that in the ninth century the Danes took possession of Dublin, and, totally disregarding the authority of the provincial King of Leinster, established a government of their own; and, furthermore, that about the year 948 they embraced Christianity. Although in 1014 we find King Brian Boru defeating the Danes at the Battle of Clontarf, still they were not dispossessed of Dublin, which they managed to retain for a long time afterwards.

In the year 1028 the Cathedral of the Holy Trinity (now called Christ Church) was founded for secular canons by Sitric, Danish King of Dublin, aided by Donat, bishop of that city. Sitric also endowed it with the lauds, manors, villans, cows, and corn of Baldoyle, Raheny, and Portraun; but his munificence did not stop here, for he also bestowed as much gold and silver as built the church and court thereof. Donat is said to have built the "nave and wings of the cathedral," the chapel of St. Nicholas on the north side, and the chapel of St. Michael adjoining the cathedral. He also built his episcopal palace on the site subsequently occupied by the courts of justice. Of all these works no trace whatever remains.

In the year 1162 Laurence O'Toole succeeded Gregory, the first archbishop of Dublin. This Laurence had been abbot in Glandelagh, and was distinguished for his piety and severe discipline. A man of his character was not likely to tolerate the lax discipline of secular canons, and we read that he converted the cathedral (about 1163) into a priory, and established the order of Arroisian Canons, the term Arroisian being taken from an abbey in Arras, in Flanders. This order is long since extinct. This was the first great change in the establishment, the dignity of which was upheld to the utmost, and we are told by Sir James Ware that, "while it contained a regular community, the prior was a lord in parliament, and had a seat and suffrage amongst the spiritual peers"; and it was a custom, during the vacancy of the See of Dublin, to send the archiepiscopal crozier to the prior of Christ Church to be kept till the new archbishop was appointed.

After the arrival of Henry II. in Ireland various civil and ecclesiastical buildings were erected in Dublin by the English; and the

same author states that "Laurence O'Toole, archbishop of Dublin, Richard, surnamed Strongbow, Earl of Strigul, Robert Fitz-Stephens, and Raymond-le-Gros, undertook to enlarge this church, and at their own charges built the choir, the steeple, and two chapels—one dedicated to St. Edmund, King and Martyr, and to St. Mary the White, and the other to St. Laud." The next three immediate successors of Archbishop Laurence are reckoned also amongst the principal benefactors of this cathedral, namely, John Comyn, Henry de Loundres, and Luke.

About 1192 Archbishop Comyn built what remains of the present transepts (details of which are shown on drawing No. 5). The semicircular-arched opening in the east wall of the south transept was formerly the entrance; very little remains to give us an idea of what it formerly was. Immediately to the right of this archway is a niche (detail of which is shown on drawing No. 8); it is of a later date, and was doubtless inserted after the superstructure of the transept was built, as it is Early English in style, the remainder of the original work being "transitional" from Norman to Early Pointed. In this niche is a pedestal on which stood an image of the Virgin and Child. The triforium arcade consists of double openings with pointed arches, beneath which are marble shafts, the whole crowned by a segmental arch enriched with various descriptions of chevron work. The capitals of the columns are carved in a conventional style, and the whitewash at present covering them makes it very difficult to trace out the designs. The clerestory arches consist of double-shafted openings and segmental arches, and enriched with capitals of same character as triforium. The groining and windows are modern.

With regard to the old chancel or choir, Mr. Street says:—

"The crypt under the old choir extends but a short distance (25 feet) east of the central tower. It has a semi-circular apse, and the aisle is continued round the apse. East of this aisle are three chapels, but these, instead of having apsidal terminations, are square ended, and their dimensions are very small. . . . In the angle between the apsidal aisle and the south eastern chapel, there are remains of what seems to be a circular turret, and I think it probable that similar remains would be found on the north side also. The whole plan is, therefore, not only clearly made out, but it is one of much picturesqueness of outline, and, to the best of my belief, unique in Ireland."

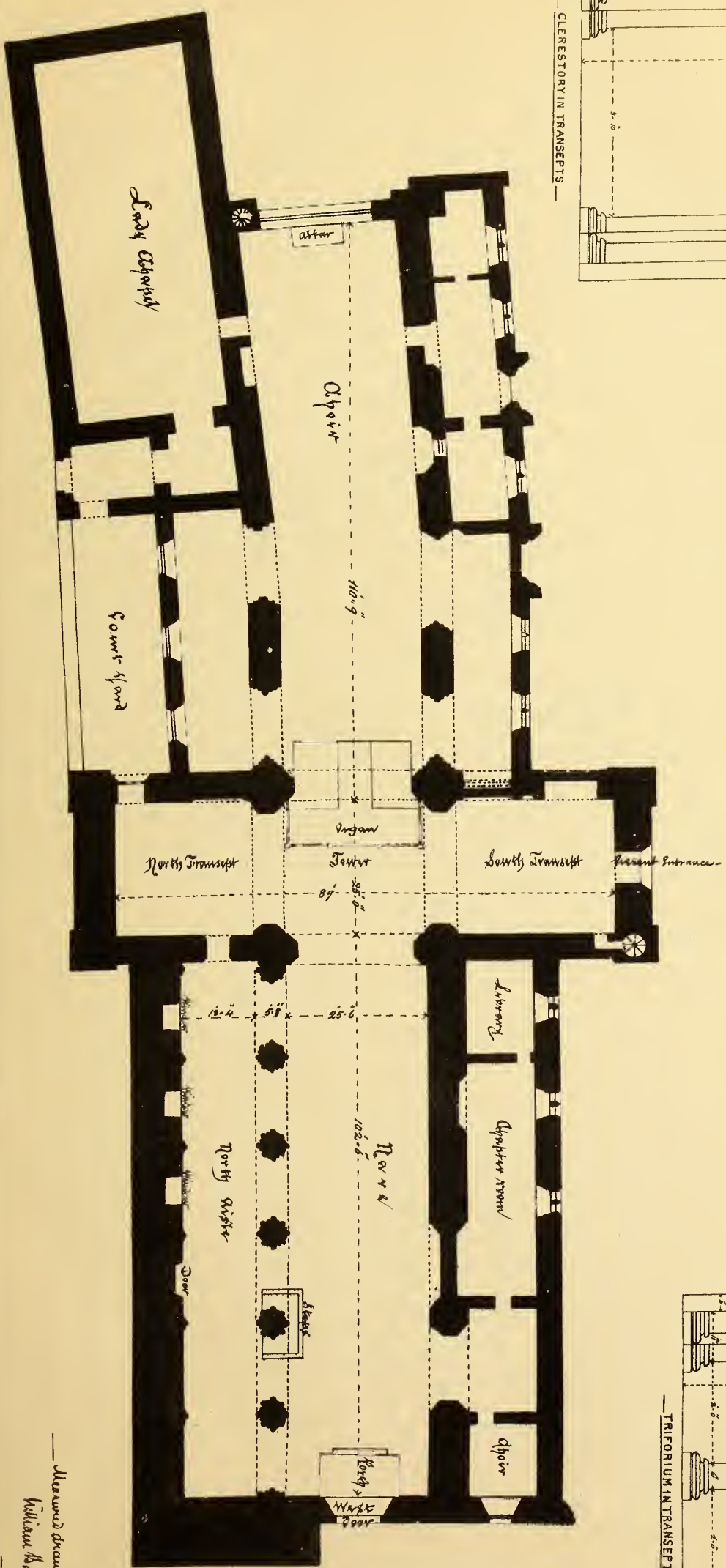
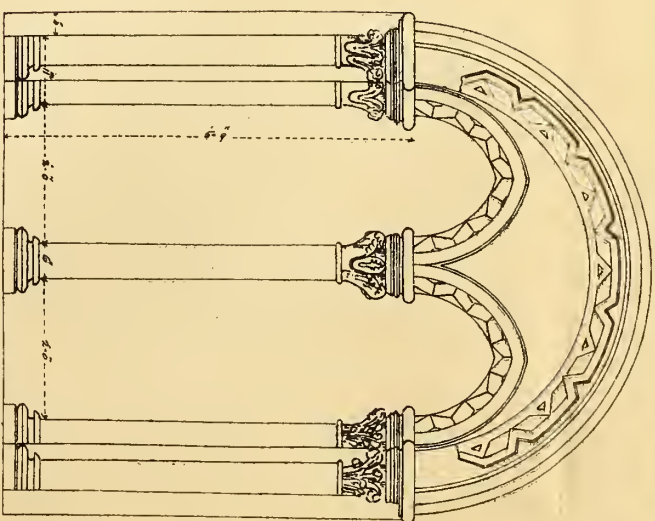
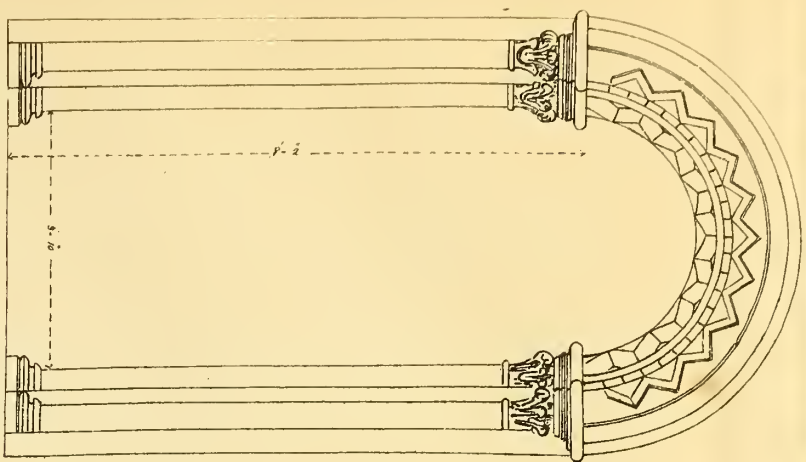
So much for Mr. Street's investigations. Now with regard to this crypt, I beg leave to state that I have made a very careful and laborious survey of it, and (as will be seen on drawing No. 1) it had a decidedly pretty outline when originally built; but now it is so deformed and patched up by walls built across many of the arches, &c., that it is with great difficulty one can form any proper idea as to its original shape. However, after three or four days of anything but pleasant work, with the assistance of a couple of candles—which did very little more than give light enough to show the intense darkness of the place,—I think I have succeeded in making a correct plan of this crypt as it was originally built. It will be expected of me, in making this rather bold assertion, to prove it by facts; and this I hope to do very briefly.

When Mr. Street made his investigations in this crypt he came to the conclusion that it consisted of a nave, a north aisle, transepts, choir, and three chapels. So far I agree with him; but I go farther and say that there is undoubted evidence to prove the existence of a south aisle also, from the fact that there are traces of jambs and arches in the south wall, which correspond exactly with the north side, and which would be meaningless and useless if there were no south aisle in existence. Mr. Street also mentions that it is probable a turret, similar to that near the south-eastern chapel, "would be found on the north side also"; but here again I must differ with him, on the ground that there is not sufficient space on the north side, as will be seen by referring to the drawing of the crypt. He has quoted the dimensions of the chapels as follows: "the central chapel measuring 17 ft.

* By Mr. William Butler, A.R.I.A.I., descriptive of his Fitzgerald Prize drawings, referred to above.

Christ Church Cathedral Dublin

GROUND PLAN



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by 15 ft. 6 in., and the side chapels 7 ft. by 7 ft.," whereas the side chapels measure 9 ft. 4 in. by 11 ft. 10 in. The dimensions of the centre one are about right.

He also states that "the pointed arch occurs in its construction throughout," but, so far as I could see, there was not a single pointed arch, properly so called, in the whole place which could be identified as original work. The only indications of pointed arches are in the vaulting, and this is caused simply by the intersection of the segmental groins. The arches in themselves are all either semi-circular or segmental, as will be seen by the drawing before alluded to.

There were probably five entrances to the crypt—one in the south transept (a detail of which is shown in drawing No. 4), two at the west end of the north and south aisles respectively, one beside the turret, and the present entrance in the north side. The present level of the crypt is 15 in. above the original: this I ascertained by excavating down till I came to the old flags.

The present nave was, no doubt, built immediately after the completion of the transepts and choir, and finished during the life of Henry de Loundres (1213-28). It consists of six bays, the piers of which are octagonal on plan, made up of eight engaged circular shafts filleted, $7\frac{1}{4}$ in. diameter, and the same number of double pear-shaped rolls placed between them. The arch moulds are very rich, and contain each sixteen members of a very pure and chaste character. The terminations of the hood mouldings are in some parts broken, and the capitals are of very beautiful design and workmanship. The triforium and clerestory are of elegant proportions and design.

The western bay is doubtless a later addition, inasmuch as the crypt does not run beneath it, and the style of work is different. The arch mould and caps of columns are decidedly of a later date than the rest of the nave. The centre shafts of the piers in the nave run up and support the springing of the groining. The bases of the piers (with one exception) are buried, and it is believed that when the south wall fell down in 1562 the debris was spread over the floor of the nave, which raised it 20 in. above the original level.

It is important to notice that in the buildings erected in England, Wales, and Ireland about the same time, a striking similarity exists. Mr. Street, in speaking of Christ Church Cathedral and St. Canice's, Kilkenny, says:—

"These two churches possess certain features so peculiar, and so exactly like what we see in St. David's, Llandaff, and Wells Cathedral and Glastonbury Abbey, that they must have been erected by the same troop of workmen, and from the designs of the same architect.

"The windows in the north aisle of Christ Church, the internal shafts of which are intersected by bands at very short intervals, are imitated closely in the north doorway of Kilkenny, and in a doorway at Strata Florida Abbey, in South Wales.

"The detail of the mouldings of the beautiful columns on the north side of Christ Church, with the singular treatment of the sculptured capitals, has the most curious similarity to the sculptured capitals of the nave arcades at St. David's, and to other capitals at Llandaff and Glastonbury, and in other respects the parallel holds good.

"These are all so unlike work seen in other districts, and so evidently the work of one school, that we may fairly state it as a fact, which does not require documentary evidence for its support, that these two great Irish churches owe their design to architects whose first works are seen in Glastonbury; and who spread thence into Wales, and thence, no doubt, with the English invaders into Ireland."

Sir James Ware states "that John de St. Paul, Archbishop of this See (1349-62), a little before his death, built, at his own charge, the whole chancel, together with the archiepiscopal throne, such as it was in the year 1658." The "White Book" of Christ Church also mentions a great window on the eastern side of the high altar, and three other windows on the southern side. On drawing No. 4 these windows are visible, with the exception of the most eastern, which is now built up.

(To be continued.)

TRADES UNIONS AND THE GOVERNMENT BILL.

THE legal recognition of Trades Unions is about to take place. The Home Secretary has introduced a Bill upon the subject, which, so far as it goes, is a decided improvement, and will redress conditionally many of the grievances which both masters and workmen complain of. It is not a compulsory measure, but a permissive one, for it is left optional with the unions to register their bodies or otherwise. Advantages and disadvantages are apparent in either case, but we think that trades societies in general will see that it will be conducive to their best interests to avail themselves of the registration clause in the Bill. As trade societies now stand they are almost outside the pale of the law for redress, yet within it for punishment. Their own officers or secretaries can embezzle or run away with their funds if they get the chance, and the society cannot bring them into court with safety. By the new Bill the union under registration can sue and be sued. There are various matters, however, in connection with the rules of a trade body that the bill will be unable to reach, and it must rest between the masters and workmen to arrange as best they may by arbitration and mutual concession.

The following abstract of the new Bill will suffice to make the matter clear to our readers, who are, no doubt, interested in the question, whether as employers or workmen:—

The bill repeals the existing statutes which expressly deal with the subject of trades unions, namely—

(1.) The Trade Combination Act of 1825 (6th Geo. IV., c. 129), with its amending act, 22 Vict. c. 34.

(2.) The penal clause of the Offences against the Person Act, under which two years' imprisonment may be awarded as the punishment for an assault committed in pursuance of an unlawful combination; and

(3.) The Trades Union Protection Fund Act of 1869.

The bill may be considered under three heads:—1. Criminal provisions; 2. Civil provisions; 3. Registration. With regard to criminal provisions the bill commences by abrogating the rule that every trade union (except one which has for its sole object the modification of hours and wages)—from the mere fact that its purpose is to restrain trade, and quite irrespective of any means by which that purpose is to be effected—is in the eyes of the law an unlawful conspiracy, rendering every member of it liable to indictment. The bill so defines the term trade union as to include casual or temporary combinations, and, consequently, this clause will serve to protect, not only trade unionists, but also non-unionists, who may join in a strike or other trade combination; also masters as well as workmen.

The third section strikes at the use of improper means for effecting the purposes of a trade union—in other words, at the offence of coercion. In effect it re-enacts the penal provisions in the repealed statute of the 6th Geo. IV., against "violence," "threats," "intimidation," "molestation," and "obstruction," except that the acts constituting the offence are not left vague, but are strictly defined. Violence, indeed, means any violence either to person or property; but "threats" and "intimidation" are confined to such threats as in other cases justify a justice in demanding sureties of the peace; i.e., to threats of personal violence to a man, his wife, or child; or threats to burn a man's house down; such threats being made in earnest, so as to cause terror. In like manner the acts which constitute "molestation" or "obstruction" are limited to the following:—

1. The persistently following about a person from place to place.

2. The hiding of tools, or depriving a workman of his tools.

3. The watching or besetting, by two or more other persons, of the house or place where a master or workman resides, or works, or happens to be, or the following him tumultuously through the streets.

These acts, however, are not made criminal in themselves; they are only declared to be criminal when done with a view to coerce any employer or workman in his trade or employment.

The clause as a whole is special in so far as it makes acts criminal when done with a view to coerce in

trade which are not criminal when done with any other object; but in form it is perfectly general, affecting both the employer and the employed alike; the offence, however, is in its nature one which is not likely to be committed by employers. In estimating the sufficiency of the clause as a protection to employers and to workmen, it must be borne in mind that the provision of the bill is, in addition to the general provisions of the law, for the punishment of assault, libel, riot, &c., but it is in substitution for the provision which some judicial authorities hold to be made by the common law against the offence of obstruction to the free course of trade. As under the 6th Geo. IV., the offence is made the subject of summary jurisdiction by two justices in petty sessions, with an appeal to quarter sessions, and the extreme punishment which may be awarded is three months' imprisonment, with hard labour.

As to the civil provisions of the bill, the rule now in force of restraint of trade debars any court of justice from enforcing any agreement or trust whatsoever relative to trade unions. For such agreements as aim at restraint of trade are in themselves illegal, and such as have no aim of the kind are, nevertheless, by their connection with trade unions "tainted with illegality," and equally unenforceable. The fourth section of the bill abrogates the rule by declaring that the purposes of a trade union shall not, by reason merely that they are in restraint of trade, be unlawful so as to render void or voidable any agreement or trust.

The next section, however, makes some necessary exceptions. Certain contracts, which are therein specified, and which may be called the primary contracts of trade unions, are declared unenforceable. For instance, no person is to be compelled to carry out his contract not to work, or not to employ, and no person is to be entitled to sue for benefits to which he is entitled under a contract with a trade union. This might seem to restore the *status quo*, but the effect of the provisions as a whole will be that all collateral and subsidiary agreements connected with trade unions will become enforceable. For example, a trade union secretary will henceforward be competent to sue for his salary, and an action for a breach of the covenants of a lease of a building used for the purposes of a trade union will no longer be liable to be barred by the plea that the premises were let for an unlawful purpose.

The sixth section exempts trade unions from the Companies Acts, within the scope of which they would, now that they are rendered lawful societies, naturally fall, and they will be released from the liability which now nominally attaches to them of being wound up under the winding-up provisions of the same acts. The same section withdraws trade unions also from the operation of the Friendly Societies Acts. Those trade unions which, by having deposited their rules with the Registrar of Friendly Societies are already under the temporary Act of 1869 entitled to the benefit of the 24th section of the Friendly Societies Act as to the prosecution of defaulting officers, will, after the passing of the bill, cease to be so entitled, but will be able to obtain a corresponding advantage, together with other advantages by registering under the bill.

The remainder of the bill deals with the subject of registration. Registration is made voluntary, not compulsory. The only conditions attached to it are such as to secure publicity; once a year the trade union is to deposit a copy of its rules, and also an abstract of its accounts, with the registrar. The registrar is entitled to demand further particulars if necessary. The Board of Trade is the registrar. The principal advantage conferred by registration is the power (similar to that possessed by friendly societies) of resorting to a summary process for the purpose of punishing fraudulent officers and of recovering the embezzled property of the trade union. There are also minor advantages, as the power to the trade union of suing and being sued by the union officer; power to hold land by perpetual succession as a site for a building wherein to carry on its business, &c.

Trade unions which fail to register will remain under the disabilities entailed by non-incorporation, and in case of their property being embezzled will only have the redress which under the Recorder's Act is open to them in common with other partnerships and companies.

No doubt some amendments will be necessary, and will take place before the Bill becomes law. When that event takes place, we will probably have a few words to add on the uses and abuses of trade unions in general, and how differences between employers and workmen can be amicably arranged without an appeal to the law.

Captain Hall, the Arctic explorer, is going to make another attempt to reach the North Pole. He will set out in about three months, winter in the Arctic regions, and he hopes to reach the North Pole on a sledge drawn by dogs before the summer of 1872 is over.

LIMES AND CEMENTS.

(Continued from page 51.)

In our last number we printed the first of a short course of lectures on Limes and Cements by Lieut.-Col. Scott, R.E. The following is an abstract of his second one, delivered on the 18th ult. :—

After briefly passing in review the substance of the earlier portions of his previous lecture, he proceeded to speak again, and at some length, on the doctrine of chemical equivalents, a subject of very great importance in many matters with which the architect has to deal, and without a knowledge of which that part of his course of lectures which treated of testing limes and cements could not be well understood. He named the four points which it was essential should be borne in mind. First of all, chemical substances have always the same chemical composition; for instance, carbonate of lime always has the same proportion of carbonic acid and of lime wherever the specimen may be found, whether he (the lecturer) produced the substance chemically by uniting carbonic acid with lime, or whether it were formed by natural processes. Secondly, if one substance unites, with another substance in more proportions than one, the second and the third proportions will always be multiples of the first, or bear some definite ratio to it. Thirdly, when we find a substance to combine with another substance, as hydrogen with oxygen to form water, and you determine what is the weight of the oxygen in the water, and then determine the proportion in which oxygen will combine with carbon and sulphur and other substances, you then know the proportions in which these bodies will unite among themselves. Fourthly, when we had ascertained the combining proportions of the simple substances in compounds, that then we should always find that the proportions in which they have combined will be according to the chemical equivalents of those substances. Referring to the combination of lime with water as an illustration, the lecturer exhibited some which had been obtained by the burning of Carrara marble, which was a very pure limestone indeed. Directly water was poured upon such lime a very violent action ensued, called slaking. In what proportion did water combine with lime, i.e., how much water becomes solidified as a hydrate of lime in the dry powder obtained? This was readily shown by means of the chemical symbols CaO , HO , and the table of chemical equivalents on the wall. In every 37 parts of the hydrate of lime by weight there were 9 parts of water and 28 parts of lime, of which 28 parts of lime, again, 20 parts consisted of the metal calcium, and 8 parts of oxygen. If lime treated in this way with water were put into a bottle and shut up tight from the atmosphere after it had been made into a paste, there were no means whatever, as he had explained in the last lecture, whereby that lime could ever become a solid substance. But if the carbonic acid gas of the atmosphere got to it a change took place, the water being expelled by the carbonic acid gas. This gas, however, could never penetrate far into the interior of a heavy mass of mortar, and so the hardening process would be limited to a mere external film or coating. So far as the carbonic acid, however, did penetrate it would replace the water of the hydrate of lime to the extent of 22 parts by weight of carbonic acid for every 9 parts of water, carbonic acid, as the tables showed, being a compound of carbon and oxygen, in the proportion of 6 parts of carbon and twice eight, or 16 parts of oxygen. The lecturer then pointed out that the calcination of pure carbonate of lime was comparatively a simple operation; that pure lime, being infusible, there was little danger of overburning, though, as it was possible for carbonate of lime to fuse in an atmosphere of carbonic acid gas, an excessive heat suddenly applied might, by fusing the outer crust of a large stone, prevent the escape of carbonic acid gas from the interior. Referring

to the preparation of plaster of Paris, Lieut. Col. Scott said that if he burnt gypsum, which was represented by the formula CaO , SO_3 , 2HO , to a temperature of 212° he should get rid of half the water it contained. If he carried it to 272° of heat he should drive off the whole of the water; in either of these cases the set of plaster of Paris could not take place; therefore, in the preparation of plaster of Paris from sulphate of lime these two extremes must be avoided, and an intermediate point be aimed at which left in the substance about half an equivalent of water or a quarter of the water contained in the gypsum. Artists, he remarked, preferred burning their own plaster of Paris. They did it very carefully. They ground it to a powder, put it into a sort of pan, which was carefully heated, and after a time it seemed to boil, and there was a tumultuous motion of the whole mass. This motion having ceased, the heating was stopped, as the compound had then arrived at the right point. Plaster of Paris was best burnt for building purposes on an extensive scale, in ovens resembling those used by bakers. The manufacturer knows when it is sufficiently burnt by its presenting a dull and earthy appearance in portions, with a few bright spangles or crystals here and there. The lecturer then again pointed out that plaster of Paris was a comparatively soluble substance, and was therefore quite unfitted for any work exposed to wet. Parian, Keene's, and Martin's cements all had a plaster basis, and though from the greater density which the heat to which they were subjected gave to them they could longer resist the action of wet, yet that they also would end by being dissolved by water. Coming to hydraulic cements and lime, the lecturer said that in this case we had carbonate of lime as it existed in nature, mixed with a certain portion of silicic acid. When these two substances were burnt together, the first action that took place was that the carbonic acid was expelled. The silicic acid at the high temperature became a strong acid, although by no means a strong acid at a low temperature; and if the heat were carried sufficiently far, the lime and the silicic acid would form into a silicate of lime. The heat might, however, be carried to a certain intermediate stage, the nature of which was really very difficult to comprehend, but on which the action of hydraulic limes and cements depended. If he took silicic acid and mixed with it lime at the ordinary temperature, a certain weak action would be set up, as shown by the table on the wall, but very inferior to that which took place after the burning of the two together, as was done in the case of cements. In speaking of this the lecturer said he had assumed that the substances had a certain definite proportion to each other, viz., three equivalents of lime to one of silicic acid, an assumption which it was evident, from the varying nature of the beds of quarries, could rarely if ever be found in nature in any quantity in sedimentary strata. If he took out some of that lime and replaced it with iron, alumina, potash, or soda, and calcined the compound, he should then get a much more definite action between the silicic acid and the lime when mixed with water. The silicic acid, as previously stated, combined much more freely with several bases than with one base. With reference to the effect of different stages of calcination, if he were just to drive off the carbonic acid, and no more, the silicic acid and the lime would have no very strong tendency to combine with one another, but the lime would exhibit a very violent affinity for water. If the temperature were considerably increased the materials would fuse and lose the property of combining with water. If calcined to an intermediate point, they would, when mixed with water, run into a solid substance, like the set of Roman cement. Portland cement was prepared from an artificial mixture of carbonate of lime and clay, in which the proportion of iron, alumina, and other bases was not so large as in Roman cement stone, and would therefore bear a higher temperature than that stone without becoming

inert in its action with water. It might indeed be said of Portland cement, when properly burnt, that it had been carried to a state of incipient infusion. It was then very dense, and for this reason its weight was a test of its quality, though not necessarily an infallible test, or even a necessary one in all cases. In many parts of the country—he mentioned the fact now less it should escape his memory when he came to testing cements—"Portland" cement was made with Bath cement, darkened in colour by the admixture of a little lamp-black. It was very easy to detect this imposture, if suspected, without the test of weight. All that was necessary was to stir a little of it in a bucket of water, when all the lamp-black would come to the surface. Passing from the calcination of hydraulic cements to hydraulic limes, the lecturer stated the difference between the two to be this:—A cement is a substance which unites with water and slakes in one action. A lime slakes first and the silicic acid runs into combination with it subsequently. In burning hydraulic lime the main point should be to burn it "tender," as the workmen term it. There are often great difficulties in burning it, because the beds differ greatly in quality. Lias limes, of which there is great ignorance amongst builders, are often better in quality in the bag than in the lump, the lump lime being made from the harder stones containing a less proportion of clay than the beds used for ground lime. Ground lias lime, supposing it to be well burned and ground, is, therefore, as a rule, better than the lump lias which comes into market. After stating the various proportions of fuel necessary for burning various descriptions of limes, the lecturer proceeded to speak of the slaking of limes. With reference to fat or pure limes he observed that it was unnecessary to grind them, because directly water was put to them they slaked to a finer powder than they could possibly be reduced to by mechanical means. Cement and plaster of Paris of course must be ground; add water to a lump of either in its unground state, and it would still remain a lump, merely becoming harder from the solidification of the water. With regard to hydraulic lime, it might or might not be ground before using; but the wisest plan was always to grind it, for however carefully the lime might be burnt it was impossible to avoid the overburning of some particles which might subsequently slake in the work or occasion its disruption. As to the practical question of the best way of slaking limes there were great discrepancies of opinion. Vicat had written upon the subject, as well as Treussart, Rancourt, Pasley, and others. They described three modes in which the slaking could be conducted. Firstly, what they termed the ordinary mode, which is identical with that practised all over London at the present time. In this mode the lime was surrounded by sand and enough water was thrown upon it to bring it to a fluid paste, which was subsequently more or less imperfectly incorporated with the sand. The second method, that of immersion, consisted in dipping the lumps of lime, placed in baskets, in water until the hissing ceased, and then throwing them into a heap to finish slaking. The third method of slaking lime was by the spontaneous action of the atmosphere on the lumps, when spread out and exposed for a length of time. Vicat put the relative merits of these different modes in the following order:—

Fat Limes	Hydraulic Limes
Ordinary.	Ordinary.
Spontaneous.	Immersion.
Immersion.	Spontaneous.

Rancourt considered the following to be the order:—

Fat and feebly hydraulic	Hydraulic and Eminently hydraulic
Spontaneous.	Ordinary.
Immersion.	Spontaneous.
Ordinary.	Immersion.

The lecturer suggested that when such discrepancies existed, General Pasley was not far wrong in placing no reliance on Vicat's

nice distinctions. The lecturer believed the best plan of slaking strong hydraulic limes to be that of sprinkling them well with water, and then covering them up with sand for twenty-four or forty-eight hours to keep in the steam, and thoroughly slake the more inert particles. This was also the method recommended by Treussart. In conclusion, the lecturer compared some experiments made by General Treussart and Mr. Cahill, Clerk of the Works of the War Department at Plymouth. From the latter it appeared that

Plymouth lime, 70lb. to the bushel, required to bring it to a paste six gallons of water, and made $2\frac{1}{2}$ volumes of paste.

Keynsham lime, 80lb. to the bushel required to bring it to a paste three gallons of water, and made $2\frac{3}{4}$ volumes of paste.

Lyme Regis lime, 70lb. to the bushel required to bring it to a paste two gallons of water, and made 1 6-7th volumes of paste, whereas the bulk of paste of lime obtained by General Treussart from limes of similar chemical composition was far smaller. The lecturer believed these discrepancies to arise from the different modes of conducting the experiments.

L A W.

A BUILDING CASE.

COURT OF QUEEN'S BENCH.

(Before the Lord Chief Justice and a Special Jury.)

Cockburn v. Puxley.—This was an action brought by the Messrs. Thomas and Gilbert Cockburn, builders, of Great Brunswick-street, in this city, to recover a sum of £15,327 15s. 10d., balance of an account alleged to be due by defendant, Mr. Henry Lavallin Puxley, of Dunboy Castle, Castletown, in the County of Cork, together with damages for an alleged breach of contract, by depriving plaintiffs of their appeal from certain valuations and decisions. To the summons and plaint, which contained eight counts, defendant pleaded eighteen defences, admitting liability on the first ground of action to the extent of £500, which sum was brought into court; traversing the making of the contract sued on, and averring that he was always ready and willing to leave all disputes to the referee until plaintiffs first refused to do so. There were then numerous replications, rejoinders, and demurrers, till at length the issues prepared for the jury were increased to twenty-nine.

Mr. Sergeant Armstrong, in opening the case, said the defendant was a gentleman of large fortune and position, resident in the County Cork. Some few years ago he became inheritor of the old and historic structure of Dunboy Castle, which he determined on extending, and, in fact, rebuilding. At the outset it was contemplated apparently to re-roof the old structure, and to erect an entirely new building on a grand scale, and in the mixed Gothic style of architecture, in front of, but communicating with, the old castle. Circulars were accordingly sent to the building trade inviting tenders, and ultimately his clients' tender was accepted. A contract was then entered into for the erection of what was technically known as the "carcase" of the new building, the original idea of putting a new roof on the old edifice having for the time been lost sight of. This instrument bore date the 5th of July, 1866, and incorporated architect's plans, specifications, and general conditions of works "to be done in altering and adding to Dunboy Castle, Bantry Bay," by which it was agreed that the new structure should be in the best Ballynocken (Wicklow) granite, with Ballintemple (Cork) limestone dressings, and of superior workmanship. After providing for the scale of payment, which was to be ascertained either by a charge of 10 per cent. over actual expenditure on the part of plaintiffs, or by measurement, according to defendant's election, the contract provided that "should any disputes arise between the architect and the contractors on any matter not actually depen-

dent on the explanations of the plans and specifications, or the quality of the materials used, on which points the said architect's decision is to be finally binding, the same shall be referred to Thomas Newenham Deane, Esq., whose decision, both as to the matter referred to him and the costs of reference, shall be final and binding on all parties, and shall be made a rule of her Majesty's Court of Queen's Bench in Dublin." From almost immediately after the perfecting of this contract, plaintiffs commenced operations, and the result was a building which, he believed, could not be rivalled for beauty or finish in the United Kingdom—a residence which defendant had repeatedly, and with much truth, called "his marble palace." In October, 1867, however, when the work was nearly completed, the idea of roofing the old castle was revived, and it was also determined to "case" this structure, and refit it entirely within. A new agreement was come to between the parties, simply to the effect that "all general terms and conditions should be in consistency with the main contract." At the outset he should have remarked that Mr. Puxley chose to pay by measurement, and that he appointed a Mr. Franklin, while plaintiffs employed a Mr. Dudgeon, to survey the works and determine their relative value according to a schedule of prices agreed to by the contractors. The gross claim on foot of all the works amounted to £36,827, of which they had been paid on account £21,500, leaving a balance (when credit was given for the £500 lodged in court) of £15,327 15s. 10d. There was very little difference between the surveyors as to the value received, but the architect had thought fit to make large reductions on the account, even as arranged by Mr. Franklin, and on the Messrs. Cockburn insisting on a reference to the arbitrator, Mr. Deane, defendant refused. At this stage of the controversy it transpired that the original agreement had not been signed by Mr. Puxley, although forwarded to him for that purpose—a point on which defendant never relied.

Evidence in support of plaintiffs' case was then gone into. Amongst those examined and cross-examined were—Mr. E. H. Carson, architect; Mr. E. P. Gribbon, building surveyor; Mr. A. Dudgeon. These witnesses certified that the work was done in excellent style, and that the gross claim as made out by plaintiffs' surveyor was fair and proper, and according to the terms of agreement. The plaintiffs, and two of their foremen engaged at Dunboy during the progress of the works, were also examined by Sergeant Armstrong, and cross-examined by Mr. Macdonogh, Q.C.

Mr. Macdonogh, Q.C., in opening defendant's case, observed that his client, Mr. Henry L. Puxley, derived a life estate in the property of his late grandfather, John L. Puxley, Esq., which included a valuable estate bordering on Bantry Bay, together with others in the sister country. Being desirous of residing in Ireland, which he (counsel) only wished all their landowners were, he (Mr. Puxley) determined on having an addition made to Dunboy Castle; but feeling that it would scarcely be fair to bear the entire expense out of his life estate, he applied to the English Court of Chancery, and obtained a sum of £12,000 out of the moneys accumulated on the Berehaven Mines, passed and secured by his grandfather's will. Tenders were called for, and plaintiffs' proposal was accepted; a contract was entered into between the parties. He (counsel) could not but remark that in his opinion there was a growing desire on the part of builders to outbid one another by putting in a lower price than their neighbour, and the result was a corresponding desire to subsequently "wriggle" out of contracts. They must, however, apply law to such cases; and he believed if there was an essential principle necessary to be vindicated in this life between man and man, it was the validity of contracts. In the present case a binding, formal, and most elaborate agreement had been entered into between the parties in July, 1866, for the erection of a new building in front of the old Castle of

Dunboy; and plaintiffs subsequently, towards the close of the same year, undertook, under the same contract, to recase the old structure, and put in new internal fittings. True, the plaintiffs now denied that they had proceeded with the latter works under the main contract; but he (counsel) would produce letter after letter from their firm up to 1868, admitting the contrary. As they had already heard, the provisions under the instruments (which he contended, and which his lordship would, he felt assured, tell them applied to all the works executed) gave a reference only on such disputed matters as were not dependent on the explanation of the specification and general conditions with which were incorporated the contractor's prices. He would show them in evidence that the plaintiffs desired to have matters referred to the arbitrator which were priced in the schedule, and that for the purpose of having a very considerable increase put on several heavy items, involving thousands of pounds.

The learned counsel had not concluded his address at the rising of the court. On the following morning he informed the Lord Chief Justice that on the previous evening the parties had come to an arrangement, by which it was agreed to take a verdict in blank, to be filled up when the sum found due was fixed by arbitration, each party to have the nomination of an architect, and the two to have power to call in an umpire; these to examine the buildings, have a reference to the contract, and all the circumstances of the case, for the purpose of ascertaining whether the £22,000 which the plaintiffs had already received from the defendant was sufficient remuneration for the works executed. If they found that it was, then the verdict could be entered for the defendant; but if they found it was not, they could then say how far it was insufficient, and fill up the blank verdict to that amount. He congratulated his lordship on having been thus freed from the very laborious duty of trying so very intricate a case.

Sergeant Armstrong said he was pleased to find that the case had come to what he might call an amicable settlement.

The Lord Chief Justice, on behalf of himself and the jury, expressed pleasure at being thus released from the trial of a very intricate and important case. He must say that it was a circumstance which he rejoiced at, to find a gentleman like Mr. Puxley, possessed of extensive wealth, and deriving large revenues out of this country, determined on spending money at home in the erection of a suitable residence, and coming to live amongst us. He hoped that the example of Mr. Puxley would be followed by their absentee proprietors, and, at the same time, he trusted that he would not see them in the Court of Queen's Bench.

The jury then found a verdict in blank, according to arrangement.

Sergeant Armstrong, Mr. Pallets, Q.C., Mr. Falkiner, Q.C., and Mr. W. Boyd, LL.D., instructed by Messrs. T. Geoghegan and Son, were for the plaintiffs. Messrs. Macdonogh, Q.C., Clarke, Q.C., Exham, Q.C., and Fitzgibbon, instructed by Mr. J. Orpen, for the defendant.

MONSTER BLAST AT BONAW GRANITE QUARRIES, ARGYLESIRE.

ABOUT twenty-seven years ago the resources of an extensive granite region, near the base of Ben Cruachan, were opened up by Mr. William Sim, lessee of the Furnace Granite Quarries, Lochfyneside. This new branch of industry has since been largely developed, and now forms an important element of productive labour in that most romantic part of the West Highlands. The granite quarries of Bonaw are situated on the north shore of Loch Etive, upon the estate of Ardhattan. Preparations have been in progress during the past eighteen months for a monster blast at the celebrated quarries, and from the time the Corsair landed all the requisites necessary, the men wrought night and day (Sunday excepted), and got their arduous labours

terminated and all made ready for the explosion to take place at two o'clock on Monday afternoon. Previous to that hour the fine day had induced considerable numbers of the country people to take up their position upon various safely distant points of view on the hills surrounding Loch Etive. A rough protecting house was formed for the battery at a point one hundred yards from the mouth of the mine, and on the same level as the quarry floor, along which the conducting wires were laid till they formed a junction with the battery near to the site of the quarry at the shipping quay. From this point Mr. Sim crossed Loch Etive to the Goat Island—two hundred yards distant—with the working cords of the battery. Here he found a desirable place for shelter from flying stones. From his position he was also enabled to obtain a near view of the working of the blast. At five minutes before two o'clock the signal shot was fired, to intimate that all was ready, and at two o'clock Mr. Sim set the battery in motion, and instantly thereafter the whole mass of rock operated upon was on the move. There was no report or noise, merely a silent heaving of the mountain, bursting and pressing forward innumerable pieces of rock from the formations in which they had existed in their natural state. The quantity of rock displaced is enormous, being computed by measurement at 80,000 tons, constituting this blast the largest and best which Mr. Sim has had during his eighteen years' experience of this peculiar system of blasting. This is chiefly to be accounted for by the excellent natural facilities attendant on the position in which the mines for the blast were placed, and the quality of gunpowder supplied by Messrs. Curtis and Harvey, from their works at Glenlyon. Mr. Sim was congratulated by all and sundry upon his great success, and the causeway-dressers, their wives and bairns went their way rejoicing at the abundant supply of good rock ready for them to commence to. These workmen are paid by piece-work, and their weekly earnings are greatly augmented when kept in a regular supply of good quarried rock, such as this blast will for a long period of time afford them.

ON PAVEMENTS.

WANT begets supply. When the public become dissatisfied with what they have, and are fully decided as to what is really needed, nothing is surer, in these days of scientific and mechanical progress, than that somehow, by somebody, the need will be met. The public want better pavements. The public will certainly have them. The old cobble-stone pavements, "the car rattling over the stony street" are soon to be things of the past. What is to be the pavement? There is no more promising or more difficult field for inventors than this. The man, or the company, who can answer the question satisfactorily, not only does the world a great service, but opens a mine of wealth. Inventors know this, and rush into the field with almost the same eagerness of competition as wealth-seekers thronged to the gold diggings of California, or to the diamond regions of South Africa. New pavements multiply upon us. "Their name is legion." Each claims to be the pavement *par excellence*, but none has yet impressed the public as just the thing. It is not our purpose to discuss the merits of the different kinds of pavements, nor the claims which the inventors of each may put forth, but to call attention to the requisites of a perfect pavement. We have before alluded to this subject, and we return to it for the reason that those who are working in this direction seem almost invariably to lose sight of some feature indispensable to permanent success. And here a remark or two upon the word success may not be out of place. Success in making large profits through corrupt "job bists" is one thing; a success in a mechanical, scientific, utilitarian point of view is quite another. In the former sense we have had many successes; in the latter sense, as yet, none. We do not mean to say that we have not pavements possessing some of

the essentials, but we do mean to say that there has been no pavement extensively laid for which any close student of the subject will venture to predict universal use, or anything like it, say fifteen or twenty years to come.

Let us seek to enumerate the essentials, and let each inventor consider for himself whether his particular device or combination provides for or meets them.

1. Durability. Not merely sufficient to withstand a few years' wear in some fashionable avenue, frequented for the most part only by carriages, but sufficient to justify adoption in our most thronged and roughly-used business thoroughfares. It may be claimed with show of reason, that we may have different varieties of pavement for different localities, but it will certainly be conceded that a pavement for which streets adapted to its endurance must be selected cannot claim to be perfect.

2. Cheapness. We mean cheapness in the true sense of the term. That is not always the cheapest which costs the least. If there is any matter in which a city may be "penny wise and pound foolish," it is just this matter of pavements. That is truly the cheapest where the purchaser gets the greatest possible return for the expenditure. Viewed with reference to durability alone, other things being considered as equal, that pavement is the cheapest with which it cost the least, interest and repairs included, to keep a street paved, and which exacts the least from teams and vehicles compelled to use it. To illustrate by an extreme: A pavement that would last for ever—supposing such a thing possible—would be dear at sixteen dollars per square yard, as compared with an equally agreeable pavement, lasting eight years, at five dollars per square yard; for the interest on the difference of cost would more than renew the pavement every eight years. The pavement, no matter how good, should not exceed in cost our present improved pavements, say five or six, or at most, for the severest streets, like out Broadway, seven or eight dollars per square yard. This, of course, does not include bonuses to jobbing city officials, for a pavement possessing all the requisites would fight its own battles, and ultimately compel its own adoption, and not be under the necessity of buying its way into public favour.

3. Permanent abundance of material. We say permanent abundance, for no matter how good a pavement may be, constructed of a material the supply of which is limited, or must in a few years become so, such an one cannot be the pavement of the future.

4. Evenness of surface. This essential hardly needs remark. The jolting, rattling, and rumbling, and wear and tear on horses and vehicles, of our present stone pavements, are nuisances no longer to be borne, and it is marvellous that they have been tolerated so long.

5. Sure foot-hold for horses. Neither those who own horses nor those who have any sensitiveness to the sufferings of these much-abused and useful animals, will favour a pavement upon which horses are constantly slipping, straining, or falling.

6. Noiselessness. This follows, of course, from evenness of surface, which must be combined with a certain degree of uniform roughness to meet the fifth requisite—sure foot-hold.

7. Rapidity of construction, so that the street may be impeded for the shortest possible time. The pavement should be completed at the rate of a block, or nearly so, per day, and each block be thrown open to the public on the day following its construction.

8. Facility of repairs. For the sake of an illustration, we have supposed a pavement lasting for ever; but pavements do not last for ever. It would seem that a pavement which could be laid with facility ought naturally to be repaired with facility; but this does not follow. Some of our improved pavements cannot be repaired without keeping the block, upon which the repairs are made, closed for days for the repaired portion to

harden, and some cannot be perfectly repaired at all.

9. Freedom from dust. That is, freedom from dust arising from the pavement itself, which follows naturally from durability; for dust of the pavement proper is caused by pulverization under attrition of hoofs and wheels, and if a pavement wears slowly it makes but little dust. Freedom from dust arising from dropping of animals, &c., is only attained by sweeping, and the surface should have such a kind of roughness as to be easily swept, possessing no deep crevices, or places for the permanent lodgment of filth.

10. Dryness. There should be nothing of an absorbent nature in or about a pavement because moisture absorbed into the pavement renders it subject to the action of the frost, and, in a sanitary point of view, certain to become impregnated with impurities, making it both offensive and unhealthy.

We have purposely left out of our enumeration of requisites one frequently mentioned and by some considered indispensable, viz., facility of taking up for the purpose of repairing or constructing sewers, gas pipes, water pipes, &c. Such facility at the present time is desirable, but for the future it is not indispensable. Subterranean work for cities will ere long conform to the pavements, and be so constructed as to be reached without disturbing them.

It would not be deemed wise to build houses with reference to digging and repairing cellars under them afterwards, and it is but a little better policy to construct streets with reference to tearing them up. We do not pretend to say what material, or combination of materials, or what device, or contrivance for using them, are to meet all the conditions which we have enumerated. The material most abundant, and thus far most extensively used, has been stone. Yet no form of stone pavement has, up to the present time, proved satisfactory. All have been either uneven or noisy, or, if smooth, so slippery as to be at times inconvenient. The most agreeable form of stone roadway extensively used is the form commonly known as the Macadam, or broken-stone road. And yet a street paved with broken stone alone would not answer the purpose, for the reason that it is not impervious to water. Yet we venture to suggest—and inventors may take the suggestion for what it is worth—that if broken stone could be held together by some kind of cement of sufficient tenacity and durability to hold the stones in their places till worn out, and render the road impervious to water, and if a pavement thus composed could be made to meet the requisites of cheapness and rapidity of construction, it would, perhaps, approach very nearly to the requirements of the coming pavement.—*Scientific American*.

THE KILLALOE SLATE COMPANY.

THE half-yearly meeting of this company was held on the 21st ult. at 22 Westmoreland-street. A satisfactory report was submitted by the directors. They congratulate the shareholders on the results of the half-year's workings. The quantity of slates raised produced £4,680 16s. 6d., and the net profits are the largest yet arrived at. "It has, the report states, "been a source of considerable anxiety to the directors to ascertain the nature of the rock in the great south slant, which is almost unlimited in quantity, and which can be worked at a higher level, and consequently at less expense, than the lower portion of the quarries—they accordingly determined this half-year to try it, and it gives them the greatest pleasure to be able to inform the shareholders that the rock promises to turn out a good supply of slate-making material; they have accordingly put men to work it, and have constructed a tramway from foot of old incline to facilitate the removal of slates and debris. Although this work is prospective and permanent, no money expended during the half-year has been charged to capital account except that paid for the purchase of machinery and plant for further developing the works. The board

recommend a dividend to the shareholders at the rate of 8 per cent. per annum, free of income tax."

The engineer of the company reports that "although the operations were checked, and nearly all the principal bargains stopped, by a heavy fall at the north side of Keogh's Quarry, which occurred early in December, the production of slates for the past six months has been satisfactory. The overhanging rock that fell into Keogh's Quarry should shortly have been removed, and its falling somewhat sooner than was anticipated has hastened the development of the north end of the quarry, the uncovering of which has been carried on for some years, and was referred to in my last half-yearly report as prospective work that I expected would soon open a large piece of productive ground. An enormous mass of very superior rock is now exposed along the whole end of the quarry, upon which twenty-eight quarry-men are raising slates of a quality as good as was ever produced at the quarries. At the great south slant a free heading joint has been intersected in the gallery that has been extended into it, and sixteen men are employed in raising slates in this part of the quarries, which is improving as the work is advanced into the rock, yielding very good slates, and with every prospect of its producing an almost unlimited amount of slate rock, all opened up to a depth of from 100 to 150 feet from the surface; and the tramway from it is completed to the incline. Six other quarry-men are employed in Keogh's Quarry, making in all fifty quarry-men now at work. Altogether the prospects of the quarries, for many years to come, are better than I have ever seen them before, and there is no doubt that increased returns and profits may be fairly expected."

NEW MASONIC HALL, BANBRIDGE.

A Masonic hall is to be erected in the town of Banbridge, from the designs of Mr. Robert Cochrane, architect, at a cost of about £600. A free site has been granted by W. E. Reilly, Esq., J.P. The building will present an exceedingly neat appearance, and will contain ample accommodation for working of the Order. On the ground floor, on the left of a spacious entrance hall, is the cloak-room, opposite which is the refreshment hall (30 ft. in length), capable of being divided into two by wide folding-doors. At the rear three rooms will be provided for a caretaker, with kitchen and serving-room adjoining refreshment hall. On the first floor will be the lodge-room, ante-room (capable of being used as a minor lodge-room), and a candidate's room. These rooms can be made to open into each other by means of wide folding-doors.

RECLAMATION AND IMPROVEMENT OF LAND IN IRELAND.

THE Irish land question is a subject that has for some time occupied a considerable share of attention. The conditions of tenure, the relations between landlord and tenant, and such kindred topics have been fully discussed, and, perhaps, somewhat exhaustively treated; but comparatively little has been stated that gives to those not personally acquainted with the subject an idea of the efforts that are being made to improve many hitherto almost valueless tracts of land. A few observations, derived from practical experience, on the works of one of these districts may serve as an illustration of what has been done or is still in progress in many parts of Ireland.

The little Brosna river, which separates for a considerable distance the King's County and the County of Tipperary, rises on the

west side of the Slieve Bloom mountains, and following a north-westerly direction, passes near the ancient town of Roscrea, which possesses a round tower in excellent preservation, through Birr or Parsonstown, receiving the Camcor river during its passage through the grounds of the Earl of Rosse, where his far-famed telescope is to be seen, and eventually flows into the Shannon, about midway between Portumna and Banagher.

From the town of Roscrea to Parsonstown, a distance of about ten miles, being the portion to which the improvements now in progress are confined, the river flows through a valley consisting chiefly of a moory soil, resting upon a limestone subsoil, interspersed with extensive bogs, that have been in some instances partly cut away for the supply of fuel and manure, and proved to be well suited for general agricultural purposes when reclaimed and improved. In their original state the lower lying part of these bogs is impassable to man, and is the favoured resort of wild fowl of various species; while the drier portions produce in some places heather, and in others a coarse, scanty herbage, unsuited for grazing, but generally cut down towards autumn, and put into small stacks or ricks, to be used as litter during the winter. The principal proprietors through whose land the river flows being favourable to a scheme for its improvement, a project was submitted to the Office of Public Works in Dublin in the year 1864, and reported upon by an engineer of the department in January, 1865; but the benefit attainable was not considered commensurate with the amount of the proposed outlay, and the scheme was deferred. However, after a careful re-consideration, it was decided to carry out the work in a modified manner, by reducing the width of some of the new channels, and omitting others which were considered less essential.

The area of the land proposed to be improved by being relieved from inundation is about 3,000 acres, the value of which, according to the old rental, was about £1,100 per annum; the estimated cost of the works, including the purchase of the water power of two old mills in a nearly ruinous state, £10,000. The increased value of the land consequent upon such outlay was estimated at about £700 yearly, showing a return of seven per cent. upon the capital expended. The actual benefit derived from portions already completed, however, far exceeds this estimate.

A board consisting of the principal land-owners along the banks of the river was formed, the Earl of Rosse being elected chairman; an act was obtained, and the works commenced during the summer of 1868.

The chief objects to be attained are, to lower the bed of the river to such an extent that the land on either side should receive the benefit of a dry subsoil, and allow of a thorough system of surface drainage; to straighten the course, so as to provide a readier outlet for the water, and prevent or mitigate the floods hitherto experienced every winter. The heaviest portion of the undertaking is at that part of the river nearest to its outlet, and consisted in excavating a channel, 10 ft. in depth, having a 30 ft. base, and sloping sides, making the width at the ground level 50 ft., through a natural barrier composed of limestone rock of a very hard nature, which could not be removed without the use of powder, clay, and gravel, which necessitated the blasting and digging, and wheeling out of 43,000 cubic yards of material, and the diversion of the stream during the progress of the works. The removal of this block lowered the water, during the dry season, in the upper part of the river some 5 ft. to 6 ft. and rendered further operations more easy, the water having hitherto been the chief obstacle, forming during a greater portion of the year a

lako of some miles in length, and of considerable width. Beyond the first mile the bed of the channel is lowered to a depth of nine and a half feet under the general surface of the adjoining lands. All shoals, weirs, fords, and other impediments are removed, and where sharp curves occurred they are flattened, or pieces of new channel in an improved line substituted: in one case as much as a mile and three-quarters of new cutting is made to connect portions of the old river. The width of the bed of stream at the upper end of district is ten feet, with a width at surface of twenty-eight feet, gradually increasing in its downward progress, in consequence of the number of minor tributaries which run into it, and help to increase its size to the 30 feet before mentioned.

Owing to the flatness of the country thro' a greater portion of its length, the horizontal gradients are for the most part slight, some portions, in fact, being perfectly level; where, however, the river leaves high ground near Roscrea, a fall of nine feet in the mile is obtained. To prevent the accumulation of sand and gravel in the improved channel, which is brought down in considerable quantities by the winter floods from the adjoining mountains, its onward course is checked at the commencement of the improvements by a sand-trap consisting of an excavation of the same depth as, but much wider than the river, above or below, into which it is gradually tapered, across the basin thus formed. At its widest part is erected a masonry wall or barrier, shaped in plan like the letter V, and carried to within two feet of the surface of the land; over this the water flows in a thin sheet, causing the sand and other heavy matter to be deposited behind it. The accumulation of sand during winter can be easily removed during the dry months of summer, when the volume of water is comparatively small.

The scheme also includes the deepening, straightening, widening, and otherwise improving of upwards of eleven miles of smaller streams which debouch into the main river, varying from 8 to 18 feet in width. These serve to draw the water from low-lying districts at considerable distances, which would otherwise derive no benefit from the project. The deepening of these streams involves the underpinning of several stone gullets under roadways, and the erection of new ones. A masonry bridge has to be erected under a public road which crosses the river, the foundations of which, owing to the depth of bog upon which it is to be built, will rest upon beech frames, supported by piles driven down to the solid substratum. The foundations of another bridge carrying a public road have to be deepened and strengthened. Two lines of railway cross the river, but the foundations of their bridges are of a sufficient depth to admit of the channel being taken to its proper level. The quantity of rock and hard material removed and to be removed is about 54,000 cubic yards; that of a softer nature about 210,000 yards. The time fixed for the completion of the works, which are now in as active progress as the weather will permit, is the end of the present year—a much longer period than would be required were it not for the fact that works of this nature can only be pushed during the dry seasons of the year, when labour is at a premium, in consequence of the demand for it for agricultural purposes in a country the population of which is sadly thinned by continual emigration. We should mention that the works are being carried out by Mr. Hart, C.E., Parsonstown, and that Mr. Kane, C.E., Tullamore, is engineer for the drainage board.—*Farmers' Gazette.*

It would appear from a communication in *Le Journal de Quebec* that the sea is steadily swallowing up the land at St. Thomas, and possibly other points on the lower St. Lawrence, the correspondent asserting that at low tide, some thirty years ago, he saw the ruins of the third church built in that locality within the space of two hundred years, and that since the battures, or banks covered by the tide, have advanced from one to two leagues into the interior

STAMP DUTY UPON BUILDERS' ESTIMATES.

In a recent impression of our contemporary the *General Advertiser* a paragraph stated that, according to the new Stamp Act, a duty had been imposed upon builders' estimates, varying according to the amount of tenders. We have made particular enquiries upon the subject, and can state upon authority no such provision exists in that enactment; at all events that it does not apply to Ireland.

A COURT-HOUSE FOR BANBRIDGE.

THE TOWN of Banbridge, Co. Down, contains a population of over 4,000; it is situated in the centre of an important and thriving district. A cry long and loud has been made by its inhabitants to have a suitable building erected in which justice may be administered without endangering the health and perhaps the lives of those whose business draws them thither. We could name many other provincial towns in which are court-houses of no better description than that at Banbridge; for an account of the latter we may adopt the words used in the memorial to the County Grand Jury—"That the apartment in which the sessions are at present held is a room used for the Petty Sessions Court; it is immediately over the public crane, which is in constant use; the removal of grain and the constant tumbling of weights create such unpleasant noise as to render the said apartment unfit for the transaction of any business, much less for a solemn court of justice. That underneath the windows of said apartment public auctions (usual in markets) of old clothes and other effects take place. That the said apartment is approached by a dark back stair; its ceiling is 13 ft. 10 in. high; no provision is made for ventilation; the judge's chamber is the bedroom of the person who keeps the building; there is no jurors' room; and the apartment in which the court is held is wholly insufficient to provide sitting accommodation for the suitors. Your memorialists having some years ago directed the attention of the Grand Jury to this matter without success, now feel constrained, from a regard to public decency, to repeat the facts, and humbly to pray that you will direct your surveyor to cause a presentment to be made at the next Presentment Sessions for a sum necessary to procure a suitable site, and to prepare plans for the erection of a proper court-house."

THE ROYAL IRISH ACADEMY.

The members of the Royal Irish Academy met on Monday evening, at their house, 19 Dawson-street,

Professor JELLETT in the chair.

Mr. Samuel Ferguson, Q.C., LL.D., read a concluding paper "On the Difficulties attendant on the Transcription of Ogham Legends, and the means of avoiding them." He described the method of deciphering the inscriptions, and pointed out specially the curious coincidences of the occurrence on an Ogham in Kerry of the genitive case of a name celebrated in Irish history—Curoi Mac Daire—near the scene of the legends relating to him. The first part of the name on the Ogham had also been defined by Bishop Graves, of Limerick, before the Latin inscription on the same stone confirming it was discovered.

Dr. Sullivan (secretary) read a paper, by Dr. T. Sterry Hunt, "On Professors King and Rowney's paper on Eozoon Canadense." The chief point which he pointed out in the paper of Professors King and Rowney was, that no pseudo-morph of serpentine after calcite has ever been observed in nature, and that until the authors gave evidence that such a replacement occurs, their theory must be considered as groundless. Other difficulties were also pointed out, especially in not accounting for how it was that the portions of serpentine which were replaced by calcite assumed, according to the hypothesis of Messrs. King and Rowney, the forms of a foraminiferal skeleton.

PARLIAMENTARY JOTTINGS.

A ROYAL RESIDENCE IN IRELAND.

Mr. Stacpoole asked the First Lord of the Treasury whether, having regard to the desire generally expressed in Ireland that there should be a Royal residence in that country, her Majesty's Government would propose to Parliament this session a grant to purchase such suitable residence.

Mr. Gladstone—That is a question which has been for some time in the view of her Majesty's Government; but I am not in a condition at the present moment to make a positive announcement respecting it to my hon. friend.

LABOURERS' DWELLINGS IN IRELAND.

In reply to Mr. Gregory in the Commons, the Marquis of Hartington said that Sir William Somerville's Act, passed in 1860, under which certain loans might be made to facilitate the erection of labourers' dwellings in Ireland, would expire next year, and it might be necessary in the course of this Session that it should be renewed. There were certain alterations and improvements which, he believed, would make that Act more useful than it had been; though its operation had been deemed of considerable benefit. In the meantime he was endeavouring to obtain some information on the question partially discussed in the Land Bill last year, and, without pledging himself, he would endeavour to deal with the subject in a wider manner.

THE NEW POST OFFICE, LONDON.

Mr. Eykyn, on Thursday week, asked the First Commissioner of Works whether the description of the new Post Office, published by a member of the Council of the Institute of Architects was correct, and if so, whether any steps would be taken to improve the elevation of that building. Mr. Ayrton said, to make his answer intelligible, it was necessary he should explain the matter. The gentleman referred to had described the design for the new Post Office as the ugliest ever conceived—that it was entirely devoid of all architectural knowledge and treatment, and want of skill applied to the work in consequence of the arrangement the First Commissioners of Works had made for carrying it out. The best answer he could give was to state what really had occurred. The design for the new Post Office was originally prepared by Mr. Fergusson, an officer of the Department of Works, under the direction of the noble lord the member for North Leicestershire, when that noble lord held office. Mr. Layard, when he took the office, did not approve of the design, and he, in conjunction with Mr. Fergusson, prepared what they considered to be an improved design. It was then sent to the Postmaster-General, and to the Treasury, and on their approving of it steps were taken to obtain tenders to carry out the works before he (Mr. Ayrton) became First Commissioner; and to show the value of the ridiculous criticism referred to, he would only add that the Council of the Institute of Architects had recommended Mr. Fergusson to receive her Majesty's Gold Medal for the great knowledge which every one knew that gentleman possessed in all matters connected with architecture.

NEW BARRACKS AT TIPPERARY.

On Monday night Mr. Heron asked the Chief Secretary for Ireland whether it is the intention of her Majesty's Government to commence the building of the new barracks for Tipperary during the present year, and whether he considered the wealth and population of the district, and intends to build the barracks of sufficient size and accommodation to be the headquarters of a regiment?

Mr. Cardwell in reply said:—The provision to be made at Tipperary will not be founded upon consideration of the wealth and population of the district, but upon the requirements of the service. It is not intended to provide for the accommodation of the headquarters of a regiment, but only for the officers, nine sergeants, and 154 rank and file.

MISCELLANEOUS.

The Society of Arts has issued a specimen envelope which it suggests as a substitute for the postal card. It is a small oblong sheet of thin paper, the top side being shaped off in the form of the usual envelope flaps. The inside of the sheet having been written on, the two sides are folded in, the bottom folded over them, and then the flap brought down and fixed in the usual way with moistened gum. The whole is very simple and light, weighing two grains less than the post card. Both in regard to public and postal convenience it seems in every way preferable to the post card.

"The popularity of Master M'Grath, Lord Lurgan's dog, is very great. To a loyal and affectionate people the most gratifying incident in the career of this Irish hero (remarks a contemporary) is the announcement that Her Majesty has invited Master M'Grath to Windsor Castle. It is to be hoped that the remembrance of this Royal invitation may keep Irish loyalty warm until the Royal residence in Ireland, which has for some time been under the consideration of Government, becomes a reality!"—*Week's News*.

A correspondent of the *Times* wishes the public to know the correct law as to tender of money, and states that before the last session of Parliament a tender of a sum above 40s. should be in gold coin, below 40s. in silver coin, below 6d. in farthings and half-pence. During the last session the Coinage Act, 33 Victoria, cap. 10, in consolidating the Acts, repealed the laws as to tenders, and section 4. in re-enacting their provisions, has altered the law only as to the amount for which a tender may be made in farthings. It is shortly this:—A tender of payment of money "shall be a legal tender—in the case of gold coins for a payment of any amount; in the case of silver coins for the payment of an amount not exceeding 40s., but for no greater amount; in the case of bronze coins for the payment of an amount not exceeding 1s., but for no greater amount."

The so-called "Cæsar's Camp" at Wimbledon is to be sacrificed to the demons of bricks and mortar. It is rumoured that Mr. Drax, M.P., has just let this old British encampment to Mr. Dixon to be cut up for building. It is to be hoped the rumour is not true, as the destruction of this interesting relic of antiquity would be not only a local, but a national loss. The camp is a circular entrenchment, with a deep ditch, enclosing about seven acres, and is supposed by Camden to have been connected with a battle fought in 568 A.D., between Ceawlin, son of Cynric, King of the West Saxons, and Ethelbert (known as St. Ethelbert), of Kent, our first Christian king. This battle resulted in the defeat of Ethelbert, and the death of two of his thanes, Oslac and Cnebba.

MODERN CUSTOMS.—Presentations and testimonials are largely on the increase; this modern custom appears to extend to almost every household, for no auspicious event is allowed to pass without its being marked by some pleasing souvenir; birthdays, christenings, marriages, the seasons of the year, such as Christmas, New Year, &c., invariably receive special commemoration. The attention of one of the great London manufacturers, Mr. J. W. Benson, of 25 Old Bond-street, and of the City Steam Factory, Ludgate-hill, has been directed to this subject. With the view of giving more artistic effect to this custom of society, he has published a most interesting illustrated historical pamphlet upon watches and clocks, also one upon artistic gold jewellery, silver, and electro-plate; all are profusely illustrated with choice designs, and are sent post free for 2d. each, thus bringing within the reach of those who live even thousands of miles away from London, one of the largest and most artistic collections which can be seen in any part of the world; and, if necessary, designs are prepared to illustrate any special case.

REPORT OF DR. ARTHUR HILL HASSALL ON MATAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Matar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

BANKRUPTS.

Denis Doherty, late of Bond's-hill, Waterside, in the city and county of Londonderry, builder and contractor.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

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Post Office Orders and Cheques should be made payable to Mr. PETER ROE, 42, Mabbott-street, Dublin.

The Irish Builder.

VOL. XIII.—No. 270.

Gleanings from Our Letter Box.

THE ARCHITECT AND THE BUILDER.



HERE are many things in connexion with building contracts which are sources of mutual vexation between architects and builders, and with which we have much opportunity of being acquainted. Letters referring to these matters constantly reach us; but we prefer, instead of publishing them as correspondence, occasionally taking up the subjects to which they refer, and offering our own remarks thereon. In the present instance we confine ourselves to but a few of these disputable points.

It is a matter of paramount importance that neither architect nor builder should encroach upon the legitimate calling of the other, and is a subject which demands the attention of both bodies. We know it sometimes occurs that architects, after making plans, are called upon to execute the works through a foreman, or, to use a more dignified term, a clerk of works, without the intervention of a contractor; and, although it is hardly possible altogether to avoid this system, it ought not to exist as a rule, and should only be tolerated in the interest of charitable institutions, when the amount to be expended is not in hand in the first instance. On the other side, builders should altogether ignore the idea of preparing plans, however competent many of them may be to do so, and which we know to be occasionally practised; but, in reference to this, the builders complain that people apply to them for estimates, and, once they recommend the employment of an architect, the chances of their obtaining the carriage of the works are few and far between. Very many instances of this occur, and it becomes more than a probability the builder originally applied to, and who it was intended should execute the contract, is ousted, in competition with another, who cares little what comparison the amount of the tender may bear to the actual value of the work, so long as he may be enabled, for a short period longer, to calculate upon a supply of ready cash, through the usual instalments. In connexion with this matter, there is another which, while it is most damaging to the architect, acts with redoubled force, and positively is often ruinous to whatever builder may be unfortunate enough to obtain a contract under the circumstances we will detail. A party intending to build applies to an architect for plans, and distinctly states the cost for carrying out the works must not exceed a fixed sum; or, an architect prepares plans, and informs his client, who has not confined him within a few hundred pounds, they can be executed for a specified amount. The plans are completed, tenders are invited, and the lowest—and it is extremely low, and given at a venture, on the chance of extras—is fully 20 per cent. in advance of the sum to be expended. But let it not be understood that we apply this indiscriminately to all, and that the principle of

guessing a proximate sum much beneath the value applies as a rule; on the contrary, we know many who take the trouble of entering fairly upon calculations, and who then leave a margin for probable contingencies. Works executed under the latter system bring credit and satisfaction to all parties concerned, while the former involves incessant irritation and annoying watchfulness upon the part of the architect, eventually bearing these consequences, because he is compelled to avail himself of the services of a builder who must naturally try to clip and save in every department, where there is a chance of its being undiscovered, and who endeavours to evade every clause of a specification, through which he may obtain a loophole. In the end it becomes apparent the contract has been taken too low, and the client's doubts as to the capabilities of the architect as a valuator are confirmed. Perfection does not exist in human nature, therefore we must make allowance for the inaccuracies which partially assist in producing this state of things. One of our greatest lawyers, now no more, has said, "It is easy to drive a coach and six through every Act of Parliament," and if such be fact when people lay themselves out to do so, how much less difficult it becomes to evade the terms of a specification; therefore, the more necessary it is that ordinary prudence should, in the first instance, suggest, at whatever cost of time and labour, that a fair and reasonable value should be placed upon intended works, because the ideal information of the client, who is supposed to be uninitiated in the mysteries of building, and obtained only by casual knowledge of its details, must, when more fully acquainted with the discrepancies which occur between architects' proximate estimates and builders' tenders, and also with the wide ranges of differences in the calculations of builders themselves (of which we shall treat of in another paper), be rendered suspicious of all parties, and sometimes acts with such influences as effectually to deter the proposed carrying out of the works. We have possibly dwelt too long on this latter subject; but our excuse must be that under valuation wholly debars the fair and legitimate builder of even a chance in competition, and when it occurs, from whatever cause it may be, both architect and client are in most instances handed over to the tender mercies of the most unscrupulous of all, the contractor, who is ever ready to undertake works beneath their actual cost.

THE SURVEYOR.

The anomalous position which the building surveyor occupies, according to existing circumstances, is a matter much to be regretted, because a great portion of his emoluments depend upon what we may perhaps designate a game of chance, and so long as he continues under this influence, it is scarcely possible he can take that interest in the extremely laborious details of his profession, which otherwise he would, were he assured of a fair and reasonable remuneration in all cases. He is consequently driven to the unhealthy system of making the good pay for the bad.

It ought to be a portion of the duties entrusted to the architect (as we shall hereafter endeavour to shew) to be the medium through which quantities are supplied to intending contractors, not that we would advise he should encroach upon the legitimate calling of his nearest professional akin; but that, instead of the present mode, he should insist upon their being furnished, in the first instance, to him,

and through him copies be supplied to builders, all of which to be eventually paid for by his client, while to the latter in the end it must prove by far the most economical arrangement. We will assume, for argument's sake, the bill of quantities then becomes a schedule of prices, no harm can accrue to either party, because, if inaccuracies are discovered during progress, and which, after all, is a remote contingency, the remedy becomes easy, the entire competition being grounded upon these errors (if any). Every one knows that there is an item attached to the end of all bills of quantities, to be filled up for the surveyor's fees, and that this is added in the general summary of the estimate. Who, therefore, pays for it? Is it to be supposed it is the builder? Is it not the client of the architect? But every one does not know that there are very numerous instances where the surveyor is never paid at all, because, according to existing rules, his fees can only be demanded from the successful contractor. Days upon days, and long nights spun out into the small hours of morning, have been spent in the wearying duties of elaborate and minute calculations, yet they are hopelessly and irretrievably lost to him for ever, because the building is either abandoned for some unforeseen cause, or it is obtained by a solitary contractor, who prefers the task of making his own calculations. The consequences which arise are simply these: in self-defence, the surveyor must put on, in every separate instance, a percentage at a much higher ratio than if he had a moral certainty of moderate remuneration in all. To those of our readers unacquainted with this matter, let it be understood, as we have stated above, that this increased percentage becomes part and parcel of the builder's estimate, and this item, nearly 1½ per cent. in all, that is, including lithography, will be very considerably reduced by the rule we have proposed.

That architects are not blameless in the matter we think they will acknowledge, because were they to explain to clients that eventually it is they who bear the cost, economical principles would prevail, and induce them to acknowledge the necessity, and eventually it would become the rule that in all instances the surveyor's fees would be paid by them.

BUILDERS' TENDERS.

That the preparation of tenders in competition, upon one uniform bill of quantities, would tend considerably to diminish the wide range of differences which often exist between them cannot be doubted. To those whose every-day experience brings them in contact with building, these variations appear of a most startling and often unaccountable character. How much more so must they be to those whose first acquaintance with them is when they appear in the position of architects' clients, perhaps to invest the savings of their earlier years, accumulated in trade, or others who are acting as trustees for individuals or public bodies, or may be to those intending to build private mansions, or increase the accommodation of those already in existence.

We will, therefore, endeavour to account for these differences after our own fashion. First, the labour attendant upon the regularly taking out all the different items of a building, their superficies and contents, involves a serious inroad upon the time which of necessity is required for the builder's usual avocations. Second, if individually he employs a

surveyor, the expense is necessarily great, and too much to incur upon an uncertainty. Where there is competition at all, there is but one out of so many chances of success; but the prudent builder, nevertheless, either personally or with his assistants, takes out all his quantities in the most painstaking manner, while, in many instances, others adopt the more rapid method of bringing them out in bulk sums. Perhaps they ascertain with accuracy a few of the principal items; the remainder are arrived at by a system of proportionate average. And there are some who, by the simple process of cubing the dimensions, produce an amount most generally wide of the cost. However, they will run the chance, and if they find, when hearing the amount of other tenders, they are much beneath the value, they coolly back out; but, if they happen to have made any approach to the medium, they trust to the wide range of probabilities, and the more remote doctrine of chances to carry them through. We remember an instance of the proportionate system occurring in the case of a large mansion, when some question of dispute arose, in which our opinion was asked, and it became necessary that we should see the calculations upon which the building was undertaken. They were produced, and, to our surprise, they consisted only of the masonry and brick work, and because they amounted to so much, we were informed that, as a matter of course, the remainder would amount to so much more in proportion.

We scarcely think we need adduce further argument to shew the necessity which exists for a change in the present mode of obtaining tenders. Bills of quantities are certainly becoming general for works of importance, and prepared by qualified men, but upon an unhealthy principle, because there are many events, as we have already shewn, by which all the time and labour spent in their preparation amounts to nothing, as some, in order to avoid adding their costs in the sum total, will not avail themselves of them, to the prejudice of others, and possibly to their own lasting injury. Therefore it becomes the duty of the architect to insist that all should be calculated from one bill, which, independent of its other advantages, gives him the opportunity of advising his client of the nearest possible approach to what the average amount of the tenders will eventually prove to be.

CHRIST CHURCH CATHEDRAL.*

(Continued from page 63.)

The choir diverges from the axis of the nave, and is described by Mr. Street as follows:—

"This lady chapel was evidently built without the slightest thought of its ever forming part of the church, and was entered from a western porch, to which access was gained from the eastern doorway of the north transept. It was built probably on the outside boundary of the land belonging to the church; for its axis is different from that of the church, and its north wall formed the boundary of the street which passed along the whole north side of the cathedral. This provision of an ample lady chapel did not, however, very long satisfy the authorities of the church, and whether they were moved by a desire to emulate the larger choir of St. Patrick's, or by the necessities of the increased staff of the church, it is at any rate certain that in the fourteenth century it was thought necessary to make an enormous change in the plan and dimensions of the choir. It was extended from its old modest length of less than 30 feet to the rather grand dimensions of 102 feet; and if the character of the work had been equal to its extent, there would have been nothing to complain of.

Unfortunately this was not the case; and even when first built it is impossible that the fourteenth century choir of Christ Church can have been really a fine work. In order to economize as much as possible, the architect ventured to use the south wall of the old lady chapel, and so involved himself in the necessity of making the great bend to the north in the eastern half of the choir, which is noticed by every one, but for which I have never seen the true reason given, because people have not realized the history of the successive additions to the fabric. The lady chapel was built outside the church, and therefore its divergence from the axis of the nave was of no consequence; but when its outer wall was made use of to save the cost of building a new north wall to the choir, this divergence became of the utmost importance, and involved a blemish, and an unsightliness which no architectural skill could have entirely surmounted. But as far as I can judge, there never was any great exhibition of such skill, and the new choir, with its awkward bend its absence of groining, and its want of striking architectural features, must have formed a sad contrast from the first, to the exquisite art displayed in the western half of the cathedral."

An additional chapel was built in 1512 by Gerald Fitzgerald, eighth Earl of Kildare; it was known as "My Lord of Kildare's Chapel," and was dedicated to the Blessed Virgin Mary. The site of this cannot now be ascertained.

This cathedral has been very unfortunate; for, as early as 11th July, 1283, the steeple, chapter house, dormitory and cloisters were destroyed by fire, owing to a shindy between the Irish and the citizens—the former setting Skinner's-row on fire, which, being close to the church, attacked and destroyed these portions; but they were repaired by the citizens shortly afterwards.

In 1316, on the vigil of the feast of St. Edmund, the steeple was blown down in a violent storm. About this time a licence was granted the convent, by Edward III., to build a bell tower of stone.

The great eastern window was blown down in 1461, by a storm; besides which, several articles in the cathedral suffered, amongst which were deeds and relics—a chest, containing the "Staff of Jesus," was broken, but the staff was found to be uninjured.

The year 1562 added one more to the list of accidents which had already befallen this cathedral. On the 3rd of April in that year, the stone groined roof, which had been gradually spreading the walls, came down with a crash, bringing with it most of the south wall of the nave and its arcade, and the greater part of the west front: to this may be attributed, in a great measure, the present dangerous state of the north wall of the nave, which is very much out of perpendicular. In the same year was commenced the building of the present south wall of the nave, which is commemorated in the following manner:—

THE RIGHT: H
ONORABLE: THE: LO: OF: SVSSEX: LEVINT:
THIS: WAL: FEL: D
OWN: IN: AN: 1562:
THE: BUILDING: OF: THIS: WAL:
WAS: IN: AN: 1562.

It will be seen by the date of this disaster, that the reformation in religion was in progress; and it is unnecessary to state what effect it had on architecture. Suffice it to mention that the south wall of the nave was then built as we see it now—a disgrace not only to those who built it, but also to the succeeding (and the present) generations, who have suffered it to stand.

It appears that Thomas Jones, Archbishop of Dublin (1605-19), rebuilt a part of Christ Church, which fell in his time; he also repaired the steeple, and placed on its summit three weathercocks, which, being afterwards fallen to decay, were restored by John Parry, while dean of the cathedral.

In the reign of James I., a licence was granted to Henry Southey, Sergeant-at-Arms, to hold lotteries for three years, in the city of Dublin, or any other corporate town in Ireland, in consideration of his having given £500 to repair the cathedral, which is stated by the record to have been "in a very ruinous state, unto which our deputy" (the Lord Lieutenant) "and council do usually resort to hear divine service; and also inasmuch as the same may greatly tend as well to the in-

crease of civility, by the nourishment of friendly concourse and amity, as also the honest delight and pleasure of our subjects."

In the Harleian manuscripts the following memorandum occurs, describing the inauguration of one of the Lords Deputy:—

"Memorandum—That on Friday, the 6th of September, 1622, Sir Henry Carye, Knight, Lord Viscount Falkland, late comptroller of his Majesty's privie counsell in England, and now Lord Deputie of Ireland, landed at Hoathe late in the evening, where for that nyghte he was entertained by the Lord of Hoathe. And on Saturday, in the After-noone, Sir Adam Loftus, Knight, Lord Viscount Loftus of Elve, lord Chancellor of Ireland, and Sir Richard Wingfield, Knight, Lord Viscount Powrsert, and Marshall of Ireland, Lords Justices of this Kingdom of Ireland, being attended with divers of the nobilitie and privie counsell of this Kingdome, mett the said Lord Falkland within midway between Dublin and Hoathe, and so they came together to the Castle of Dublin. And upon Sunday morning, being the eighth of September, the Lords Justices and Counsell met together in the Counsell Chambr in the Castle. And the Lord Chancellor, leaving the rest of the Counsell in the Chambr, being attended by Francis Edgeworth, Clerke of the Crowne of the Chancerye with the roll of the Lord Deputies oath, went into the withdrawing chambr to acquainte the Lord Falkland with the same. And (after a short conference between them), the Lord Chancellor returned into the counsell chambr againe, from whence the Lords Justices, with all the Counsell, having the King's sword borne before them by Sir Charles Coote, knight and baronett, one of his Majesties Privie Counsell, repaired unto the Cathedrall Church of the Holy Trinitie in Dublin, commonly called Christ Church, where, being seated in their seates, and his majesties sword left before them, all the counsell, together with the gentlemen pensioners, attendants, returned backe to the castle, from whence the Lord Falkland, being by them attended, and accompanied with the Lord Viscount Wilmott of Athlone riding by his side, they came all together to Christ Church, and being there seated in their usual seates, Doctor Usher, Lord Bishop of Meath, made a leained sermon, and the sermon being ended, the Lords Justices came downe from their seates, the sword being borne before them, and the Lord Falkland following them to the communion table, where the Lords Justices being sett in two chaires provided for them, the said Lord Falkland delivered unto the Lord Chancellors hands his maiesties two patentees under the greates seale of England, for the authoritie and place of his majesties Deputie Generall of this realme of Ireland, which the Lord Chancellour delivered to the hand of Francis Edgeworth, clerke of the crowne aforesaide (the Master of the Rolls being absent), to be by him publicly read. After the reading whereof the Lord Chancellour ministered unto the sayd lord Viscount Falkland as well the oathe of his majesties supremacye as the oathe of the said place and room of Lord Deputie Generall, both of which he received upon his knees. Which being done, the said Lord Viscount Falkland delivered unto the said Lords Justices a lettere from his maiestie, sealed with his majesties privie signett, and the same being by them opened and publicly reade by Sir Dudley Norton, Knight, principall secretarye of estate, did impart his majesties pleasure unto the Lords Justices for the acceptance of his said Deputie, and delivering unto him his Highnesses sword. Whereupon they joyntly taking the sword, delivered it to the Lord Deputie, who presently, upon his receiving thereof, conferred the honour of knight-hood upon Mr. Cary Lambart (second son of the Lord Lambart, deceased) and then delivered the sword unto the Lord Caulfield, Baron of Charlemont, to be by him careyed that day. And so they departed from Christ Church in solemnitie of estate, the Lords Justices taking place, for that day, next the lord deputie, before any other of the lords, according to the ancient custome."

It will be seen by this memorandum that Christ Church was then the Chapel Royal, and was attended by the peers and all the notabilities attached to the court; and so it continued to be till the building of the present Castle Chapel in 1814, when the venerable old building ceased to be used by the court in Dublin Castle as a place of worship; and it is now only on state occasions the Lord Lieutenant attends the poor old neglected outcast, which for centuries had been the scene of many a magnificent display, and inside whose hallowed walls are deposited the remains of many dignitaries, both of church and state.

In the year 1603 the government selected the space west of the south transept, as far as St. Michael's hill, as a site for Law Courts,

* By Mr. William Butler, A.R.I.A.I., descriptive of his Fitzgerald Prize drawings.

which they rented from the dean and chapter. The entrance to these old courts was by a dark underground passage termed "Hell." This extraordinary appellation was derived from a figure carved in black oak, which stood close by in a cellar; this figure was called the devil, and even Robert Burns notices it thus—

"But this that I am gann to tell
Which lately on a night befel
Is just as true as the dell's in hell
Or Dublin city."

In one of the newspapers of that time the following curious advertisement appears:—"To let, furnished apartments in Hell. N.B.—They are well suited to a lawyer."

When the courts on Inns quay were completed in 1796 these old buildings ceased to be used, and have since been pulled down.

The last alterations we have to notice were those made in the year 1831, by Bishop Lindsay (Kildare), who was also dean of this cathedral; and carried out by an architect called Price.

The only account we have of these works is contained in a paper by Dr. Jebb, read before the Ecclesiological Society in 1855. These works—

"Consisted in the removal of the galleries that surrounded the choir; the opening of the aisles of the choir for the accommodation of the congregation; the new roofing, panelling, and re-seating of the choir, after a fashion which has all the merit of originality; the total alteration of the stalls, both in character and position; the substitution of a sort of bed instead of a stall for both Dean and Precentor; the insertion of fanciful mullions in the windows; various innovations of a peculiar character in the venerable transepts, and the demolition of S. Mary's Chapel."

Dr. Jebb tells us further that the site of the present organ loft—

"Had been till the latter end of the last century occupied by the closet of the Lord Lieutenant, &c., anciently called the *State*, and probably by that of the Peeresses. When converted to the organ loft, the space in front was appropriated to the verse singers of the anthem, who, on Sunday mornings, came up to the loft for this purpose only, having occupied their proper place in the choir during the rest of the service."

"United at right angles to the organ loft, a gallery extended each side, supported by wooden pillars of what is called by courtesy the Doric or Tuscan Order. The closets or different portions of these galleries were separated from one another by partitions of elaborately carved open woodwork, which have been partially preserved in the modern fittings of the choir, at the back of the Duke of Leinster's and the Primate's pews, and also at the back of the organ loft."

"The north portion of the gallery, next the organ loft, was the Peers' seat, with other seats behind. On the panelling at the back of the gallery, and of that opposite, were painted the arms of all the English Sovereigns and Queens Consort since the time of Henry II. inclusive. These had probably been placed at the back of the state closet, when it occupied the site of the present organ loft."

"Next to this was the Duke of Leinster's closet, at the back of which were the family arms, now transferred to his seat below."

"Next was a seat belonging to the family of the Lord Mayor (or those of the Corporation of Dublin). On the panelling were painted in heraldic colours and devices, the symbols of the twelve tribes of Israel, as collected from the Blessing of Jacob: that of Reuben, e.g., being the heraldic representation of *water*: that of Simeon, *two swords* salterwise (i.e., instruments of cruelty), &c. These, it is believed, were not uncommon decorations of churches in the seventeenth century."

"Beyond this, and over the present seat of the Duke of Leinster, was the Peeresses' closet, which had formerly been the organ loft. There was a curved projection in front, probably for the anthem singers. The front of the seat was covered on Sundays and holidays with crimson velvet. There is still a faint indication on the wall of the aperture for the back of the organ. There was, I believe, beyond this another small gallery, and then a door and staircase, leading down to the choir, by which the communicants were accustomed to descend."

"On the opposite or south side of the church, next to the present organ loft, and facing the Peers' seat, was a gallery exactly corresponding, appropriated either to members of the House of Commons, or to officers of the Crown, with seats behind. Next to this was a closet for the Archbishop of Dublin's family. Beyond this was the Lord Lieutenant's closet (after it had been removed, at the end of the last century, from its former place, where the present organ loft stands). It was separated into three partitions, with a canopy supported by Grecian pillars, each partition being en-

closed on three sides, and lined with satin and velvet. A space then intervened, without a gallery, where the canopy of the Archbishop's Throne rose; and beyond this was a large and unsightly gallery, or rather pewed scaffolding extending eastward."

"The stalls of the choir ranged on each side, extending to about the middle of the second or larger southern arch. They were of varnished oak, apparently not ancient, but in a tolerable Gothic style, with ogee canopies, and panelled and mitred standards in front. I am not sure whether the latter were not ancient. They were arranged in the following order:—On the Dean's side, the stalls of the Dean, the Archdeacon of Dublin, and Prebendary of S. Michael's. Then a row of unappropriated stalls, with the Chancellor's at the end. On the opposite side, that of the Precentor, the Prebendaries of S. Michael's and S. John's; and at the end of the unappropriated stalls, the Treasurer's. Behind the lateral stalls, under the westernmost arches, were some dark seats, which looked into the choir through openings in the panels."

"The seats of the clerical and lay vicars and choir boys were arranged as at present. The Eagle Bible desk was placed close to the desk of the Precentor's Vicar, whence it was removed to its present position a few years ago. A little beyond, and in the centre of the choir, stood a low, unenclosed desk, facing the east, used by the Priest Vicar, who chanted the Litany. The pulpit stood near the Holy Table, in the centre of the choir, or rather the presbytery, facing westward. Within the memory of some of my informants, the pulpit was moveable, and was wheeled from a lateral position into the centre of the choir just before the sermon, and removed back when the sermon was over. The Archbishop's Throne stood in a space just beyond the termination of the Lord Lieutenant's closet, and consequently nearer the stalls than at present."

"The Corporation seat was on the north side, beyond the stalls. On the festivals of Easter and Christmas, the members of the Corporation came in their robes to church, in procession, and received the Holy Communion."

"The east end of the choir was decorated with woodwork in the post-reformation style, as represented in an old picture now in the Chapter-room. In the central compartment was a panelling of crimson velvet, with the sacred Monogram, and a Glory in the midst."

"On the Holy Table, on all Sundays and festivals, was placed a rich crimson velvet cloth, with the same device; and on the raised ledge at the back, on those days, constantly stood the large gilt candlesticks, now produced on communion days, always with large wax candles in them, which were lit whenever the service was performed by candle-light."

"Attached to the wooden pillars of the choir galleries were brass sockets and sconces, holding wax candles, which were lit for the Sunday evening service, formerly performed here at seven o'clock."

"The Chapel of S. Mary, the site of which is now occupied by buildings connected with the church, was used for the purpose of early morning prayers, read every day by one of the Vicars Choral, but disused since the late alterations. It was plainly fitted up with seats, desks, holy table, &c."

Such were some of the alterations of 1831. Forty years have now elapsed, and Christ Church Cathedral has most decidedly not improved in its personal appearance. At last something is to be done, and I believe the Dean and Chapter are now only waiting for the permission of the Church Temporalities Commissioners to begin the work of restoration, which it is to be hoped will be carried out with a spirit something akin to that of him who so nobly restored the sister cathedral of St. Patrick.*

WATERFORD A HARBOUR OF REFUGE.

At the meeting of the Harbour Commissioners on Monday, letters were read, from Mr. Coode, Engineer-in-chief to the Commissioners, and Mr. Shankey, parliamentary agent, stating that they had an interview with Admiral Belfort, respecting the proposed breakwater at Passage East, and they gathered from the admiral's observations that it was probable that the Board of Trade would refuse to grant the powers sought by the Commissioners, on the grounds that there was already sufficiently safe anchorage at Passage, and that no case had been made out for the necessity of such a breakwater. Mr. William

* For a fuller history of this cathedral, see pamphlet by Rev. Edward Seymour, A.M., Prebendary of St. Michael's. (Hodges, Foster and Co.)

Malcolmson then brought before the board a suggestion to cut the bar at the mouth of the harbour, which would render it a harbour of refuge, and would in time become a port of call for the American steamers. He said he believed that the Waterford and Limerick Railway could bring such a number of passengers down to Waterford (emigrants to America) as would make it worth the attention of more than one of the American steamers to call once each way to this port weekly. Besides, passengers shipping at Waterford would receive greater facilities from South Wales and other places than at Cork. One of these steamers would leave them £20 a week in charges, or £1,000 a year, which would go a great way to pay the interest on the £50,000 required to cut the bar, and the port and trade of the city would also be vastly improved. Mr. Kent said he recollected Mr. Coode stating that the bar might cost hundreds of thousands, and perhaps millions to cut away. Mr. Stephens, engineer, stated that the Royal Commissioners on the Harbour of Refuge reported in 1853 that the bar could be cut away for £50,000. After some discussion it was agreed to direct the engineer to consult with Mr. Coode on the subject, and report to the board.

ACCIDENT AT A BREWERY.

An accident occurred on Saturday forenoon in the brewery of the Messrs. Jameson, Pim, and Co., North Anne-street, which resulted in the death of a man named Patrick Collins, serious injury to a man named Peter Sheridan, and the loss of a deal of valuable property. About nine o'clock on that morning the gable of a large malt-house, in which a quantity of malt was stored, was crushed outwards by the pressure of the grain against it. The wall came down with a great crash, bringing with it a large amount of malted grain, which now lies mingled with stones and rubbish in one of the brewery yards. Unfortunately Patrick Collins was at work under the wall when it fell, killing him on the spot, and burying him beneath the heap of stones, malt, and rubbish. Sheridan, who was much bruised, was conveyed to the Richmond Hospital, where he remains. Collins's body was not recovered till next day, and when extricated from the debris it was horribly mutilated, and scarcely recognisable, but for his dress. The wall was of stone, two feet thick, and had been built within the past two years!!

ST. PAUL'S CHURCH, GLENAGEARY, CO. DUBLIN.

THE view of this church, which accompanies our present number, has been copied from a photograph taken by Messrs. Millard and Robinson, Sackville-street. The church was built from the designs of Mr. A. G. Jones. It is capable of accommodating about 600 persons. Mr. John Nolan, Meredyth-place, was the builder.

OBITUARY.

WE have to record the decease of Mr. William George Murray, F.R.I.A.I., a gentleman whose name will be remembered in connection with some of our public buildings erected within the space of a few years, and which add so much to the beauty of our city. Notices of his works have from time to time appeared in this journal.

GOLD REQUIRED TO LIQUIDATE THE WAR INDEMNITY.—A calculation shows that to pay off the enormous sum of £200,000,000 sterling, imposed on the French by the Germans, there will be required 51,282,400 ounces of gold, at the price of 78s. per ounce, which is equivalent to 4,273,533 pounds of 12-ounces each, and to 1,907 tons of 2,240 pounds each.

LIMES AND CEMENTS.

(Continued from page 65.)

In his third lecture Col. Scott took up the question of sand for mortar, a question which, he observed, was a most important one, and one on which there was a great diversity of opinion in the building world, and for many of these opinions there existed very slight grounds. The idea was very general that mortars were improved by the addition of sand. The lecturer said he had no doubt whatever that that idea arose in the first instance from the observation of lime used as stucco. If a very plastic mortar were employed for coating a wall, as it dried it might shrink and show ugly cracks. In proportion as sand was mixed with the plastic material the tendency to crack was got rid of, but the difficulty of making the compost adhere to the wall was augmented; it worked "shorter" as the quantity of sand was increased. The medium required was just between that degree at which the cement would crack from the heat of the sun, and that at which it could not be used by the workman. There was, however, very little foundation for the generally-received opinion as to the action of sand in mortar. Vitruvius gave some reasons why he considered sand to be beneficial. He preferred "three parts of sand, if the sand is fossil" (*i.e.*, pit-sand) "with one part of lime"; and he says "if the sand is river-sand add two parts of it to one of lime." He went on to say that "the weight of the lime, after calcination, is diminished about one-third by the evaporation of the watery parts; from this it results that the pores, being empty, are better fitted than before to receive the admixture of sand, and to unite strongly with the blocks of stone to form solid masonry." The lecturer remarked that it was hardly necessary to say that there was a great deal that was fanciful in all that.

Another attempt to account for the supposed advantage derived from sand was made by Perrault, who endeavoured to prove that Vitruvius was correct, and went on to state what was the opinion of chemists in his day. Speaking of the causticity of lime, Perrault says:—"When this property acts on the sand and on the stones, it brings out of them with time a part of the sulphurous and volatile salts which they contain, and produces between them so strong an adhesion as to form a solid and hard body." On this passage Colonel Scott observed that sand, almost a pure silica, had neither sulphurous salts nor volatile salts in it, and was therefore quite incapable of being thus acted upon by lime. People assumed, from imperfect observation, that sand was beneficial to mortars, and then sought for fanciful reasons in support of such assumption. Belidor was of opinion that between two and three parts of sand were necessary to one of mortar. Rondelet came to the same conclusion arrived at by Belidor that it is necessary to mix one part of slacked lime with two parts of river sand, but that if a better lime is used, more sand may be employed. He went further, and said:—"In order in all cases to make a proper mixture, a certain amount of experience is required to judge of the degree of consistence which well-slaked lime and mortar sufficiently mixed should have." He also stated that he had travelled in different parts of the world: "In all the parts of France and Italy through which I have travelled, I have questioned those workmen who appeared most intelligent. I have found that their knowledge reduces itself to a practical knowledge which usage and experience render sufficiently sure."

... "A workman, who by a long experience is accustomed to judge if the mortar is fat enough, enough worked, and if it has the consistence it ought to have, is rarely deceived; he beats and mixes the different ingredients of which it is composed until he has hit off the point he aims at," which point is that which the skilful workman found to suit him best.

Dr. Higgins had also written upon the subject, but most of his experiments were made upon stuccos, and his experience, there-

fore, should be looked at from that point of view. He made all his experiments by weight, and prescribed that no more than one part of lime to seven of coarse sand ought to be used in mortar to dry quickly; and less lime might not be used, because it did not render the mass sufficiently plastic for building or incrustation. The lecturer accounted for the discrepancy between Higgins's and Rondelet's statements in this way: Dr. Higgins, although concluding the proportions named (about 3 to 1 by measure) to be the best for building purposes generally, arrived at them by experiments made with reference to stuccoing; for which purpose freedom from shrinkage was a more valuable property than freedom in working. He decided, in reality, on the most plastic composition which did not crack in drying. Smeaton went a step further, and gave some sufficient reasons why sand should be used. He thought sand made a harder mortar, thus improving its quality while adding to its quantity. He says:—"The experience of ages has shown that a considerable quantity of sand and other matter may be introduced with advantage in the making of mortar, but the proportion has never been agreed in; yet from common experience it appears that there is scarcely any lime but what, if well burnt and beaten, a load or measure of lime will take two loads or measures of sand." Still pursuing the subject, to see how far the admixture of sand with lime could be carried, Smeaton further says: "It appeared that even yet a greater proportion of sand could be introduced, but to bring it to a proper consistency and toughness, so as to be a good cement to large stones, I found it needed so much more beating that the labour became in most cases of more value than the saving of materials." On another point he says:—"As the lime will receive the most sand in that way" (*i.e.*, if the sand is coarse) "without losing its plasticity, it will of course make the hardest and firmest mortar." The lecturer remarked that this idea of there being some connection between the toughness of the mortar when wet and its hardness when well set ran through the writings of all the authorities he quoted. Vicat, writing on the question of sand, drew equally nice distinctions with those which had previously been quoted with reference to the various methods of slaking between the composition that should be given to mortars according as they are made from fat or hydraulic limes—as they are slaked by the ordinary method, by the method of immersion, or by the spontaneous action of the atmosphere—and according as they are intended to exposure to weather, to damp, or vicissitudes of heat and cold. He says:—"The addition of sand is injurious to rich limes, very serviceable to the hydraulic and eminently hydraulic limes, and is neither beneficial nor injurious to the intermediate kinds." Now it was generally believed, observed the lecturer, that if any lime was benefited by the addition of sand, it was a pure fat lime, yet Vicat said that rich limes were injured by their admixture with sand. Colonel Raucourt de Charleville came to the conclusion that if the sand was harder than the cement, the more of it there was in a mortar the better and harder that mortar would be; but he objected to smooth sand. In every respect he drew distinctions (similar to those made by Vicat) between the capacities of different descriptions of lime for being benefited by the addition of sand. Pasley did not get over this tendency of the world generally to stick to the long-received opinion as to the benefit which limes received from their mixture with sand. "We found," he says, "by repeated experiments at Chatham, that one cubic foot of Halling lime weighed nearly the same when fresh from the kiln; and, by the gradual addition of water, that it dilated to the same increased bulk in the state of quick-lime powder; but when worked up into mortar, not too short for use, that it would not bear quite so large a proportion of sand as the common chalk lime had done." Hence, he concluded that, "it follows that the hydraulic limes ought not to admit of so

much sand as chalk, but that they will bear more than cement without being injured." Of course in this case Pasley was speaking of Roman cement, for at the time he wrote Portland cement had not been invented. In another part of his work Pasley wrote of the proportions of lime and sand that made mortar fit for use, and of mortar that could not have borne more sand without becoming "short." After making some experiments on the point, he writes:—"Contrary to our former opinion, which was chiefly derived from the apparent shortness of the mortar made from three measures of sand to one of lime," it had been so far disproved as to show "that, although a mixture of two of sand to one of blue has still appears to make the best mortar, yet 3 to 1 does not spoil it, as we formerly believed." In Pasley's mind there existed the old notion as to there being some necessary connection between plasticity in working and hardness in setting. Treussart (who had made, perhaps, more careful experiments on the subject than any other man) was also possessed with the same idea, and only gave up the notion with very great difficulty indeed. He says, with reference to the first set of experiments which he gave:—"I regret not being prepared for this superiority of the hydrate [he means by this the lime without sand] over mortars, but I was far from expecting it, otherwise, after having made the experiments with the limes alone, I should have made mortars by adding successively $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, &c., of sand, so as to judge better of the effect of sand; but it was only on breaking the mortars at the end of the year that I could know the effect, and I have often on such occasions obtained results that surprised me." In remarking on the results of some experiments made with a view of determining the effect of sand, he stated that the best result followed with one part of lime in paste to one of sand; but he says he did not anticipate that there might be hydraulic limes which would bear a still smaller quantity of sand, or he should have made trials with other limes, "in order to know if the sand added in the composition of mortars always, or only with some peculiar limes, diminished the resistance of hydrates." He was very unwilling indeed to give up the idea that sand strengthened limes until his own experiments obliged him to do so. Belidor, Rondelet, and Pasley, all thought that hydraulic limes would not stand so much sand as the fat limes would; while Vicat, as he thought, experimentally proved that fat limes stood the least sand. The common opinion in the present day, remarked the lecturer, was that fat or pure limes would take the most sand—and in one sense they undoubtedly would do so. Vicat and Raucourt were of opinion that fat limes were injured by sand; Pasley thought that cements were injured by sand; Raucourt finally came to the conclusion that all limes were injured by sand; and experiments made of late years by Colonel Totten, in America, have borne out that view.

Before coming to any final conclusion on the question as to where sand might be advantageous or otherwise, the lecturer said it would be well to take into consideration the facts which bore upon the hardening of mortar. It was very possible, he remarked, that without any chemical action at all, the application of so plastic a material as lime-paste between the grains of sand would result in securing considerable mechanical adhesion. Then there was considerable cohesion amongst the particles of lime themselves. Then there was the possibility that (owing to the use of sand) in making a fracture across a mortar-joint, the line of fracture might be made to take a longer course than would be anticipated—there might be a sort of interlacing between the particles of sand, something like the bond in brickwork. Because sand did not always strengthen mortar, but often the reverse, it was not to be supposed, however, that under no circumstances could increased strength be given by the use of sand. If two bricks were cemented together, the one over the other, the addition of sand to the mortar might possibly give greater strength, because

as limes set in great measure by the action of the carbonic acid gas of the atmosphere, the sand might, in such a case, particularly if coarse-grained, give greater facility for the gas to get into the pores. But this would not apply to cases in which the mortar was placed well in the interior of the work, where the carbonic acid gas could not get to it. In such cases, where the material was such as would never of itself get very hard, the cohesion must be very large. Wherever experiments had been made under such circumstances, the sand had resulted in decreasing instead of increasing the strength of the mortar.

As to the nature of the sand to be used, there was very conflicting evidence. Vitruvius preferred pit-sand fresh dug; Belidor preferred river-sand; Perrault thought that the white sand was the best; Belidor said that colour had nothing to do with it; Rondelet came to the conclusion that the best sands were neither sharp nor smooth, and that those deep in colour were better than the yellow sands. The only point on which they all agreed was that the sand should be clean, and this point was, as practice showed, of the very utmost importance. A very small quantity of clay, indeed, was quite sufficient to make the mortar moulder; from one-seventh to one-eighth would make the frost attack the mortar. All clayey or loamy sand should, therefore, be very carefully washed. The authors quoted did not agree as to the action of sea-sand. Most of them were of opinion that it made bad mortar, though some said that it gave good results. Treussart thought that, on the whole, a fine sand was better than a coarse sand. Vicat gave a great many results of experiments tending to show that various sorts of limes and cements required sand of various degrees of fineness or coarseness; but inasmuch as each author invariably contradicted his predecessor, the lecturer thought it might be safely assumed that it was pretty much a matter of indifference what the nature of the sand might be so far as regarded the size of its grains. Sea-sand, as he had before said, was proscribed by most authors; but some particular cases were mentioned by Alberti, Davy, and others, in which benefit accrued from its use. Smeaton used it in the construction of the Eddystone Lighthouse, and found that the lime was not injured by it. Partington went at great length into the action of the various kinds of water used in making mortar—spring, rain, river and sea. Colonel Totten came to the conclusion that limes were weakened by the use of sea-sand. Endeavouring to reconcile the conflicting opinions on this point, the lecturer remarked that if sea-sand were employed for plastering it always, as was well known, kept the work damp. This was caused by the chloride of sodium of the sea-water, which, combining with the lime, produced chloride of calcium; some of the soda was set free, and the chloride of calcium, getting a little dry during hot weather, when a damp day came it invariably attracted fresh moisture from the atmosphere, and always kept the work wet. If sea-water or salt sand, therefore, was used in conjunction with pure limes, the mortar resulting would never get dry. With hydraulic limes, however, the case was different, for mortar made with such limes must be kept moist to ensure the formation of the silicates and the hardening to the requisite degree. Therefore one man experimenting with fat limes would come to the conclusion (and very properly so) that sea-sand was injurious for use in compounding mortar; while the one who experimented with hydraulic limes would conclude (quite correctly) that sea-water was beneficial. But sea-water should never be used for plastering.

The lecturer next proceeded to speak of other substances which were sometimes mixed with sand, remarking that in this country, formerly, puzzolano and trass were largely used to improve the setting properties of limes. Both these substances resulted from volcanic action. Trass contained 49 per cent. of silica, and nearly 4 per cent. of potash and soda. Puzzolano had rather a smaller pro-

portion of silica (44 per cent.), but more potash and soda (5½ per cent.). Each substance also contained a little lime and some oxide of iron and alumina. When these substances were heated together with silicic acid the tendency to form silicates was very much increased. In trass and puzzolano the baking action required to bring about that condition had been done by Nature; each substance afforded in itself a kind of cement to begin with. The invention of Portland cement, however, had caused those materials to go out of fashion, as the result obtained by their use was not so quick in action as that got by Portland cement, nor, indeed, was it so perfect.

The lecturer concluded by describing the various methods of lime-burning, and the kilns used.

(To be continued.)

ENGINEERING WORKS AT POLA, ON THE ADRIATIC.

Mr. Hamilton E. Towle, of New York, read a paper before the Institution of Civil Engineers (London), on the 28th ult., which he entitled "An account of the Basin for the Balance Dock, and of the Marine Railways in connection therewith, at the Austrian Naval Station at Pola, on the Adriatic."

The harbour of Pola, naturally favourable for the purposes of a naval station, was selected by a committee of Austrian engineers and officers, as the most suitable that could be chosen for the extensive arsenal and dock-yards, which it would be necessary to construct when the port of Venice was abandoned. It was situated directly south of Trieste, on the western coast of the peninsula of Istria, south-west of Fiume, and about 60 miles distant from both those ports. Venice, on the other side of the Adriatic Sea, was 80 miles distant in a north-westerly direction. It was at first intended that excavated docks should be formed, but, in consequence of the volcanic and treacherous nature of the ground, this idea was found to be impossible of execution. A floating dock, basin and railway system were therefore decided upon, the dock adopted being that known as Gilbert's Balance Floating Dock. The basin and railways were in general principles the same as those constructed at the United States' Navy yards at Portsmouth, New Hampshire, and at Pensacola, Florida. These were the first dock basins with railways that had been constructed, and were commenced in the year 1849.

The function of a basin for a floating dock was to supply a place in which the dock itself might be grounded, either with a vessel upon it to undergo extensive and prolonged repairs, or to enable the vessel to be hauled out of the floating dock upon the railways, which latter operation was only required in cases where vessels were moved from the dock to land above the sea level, or the reverse. A basin to fulfil these requirements must be so constructed as to permit the dock to be floated upon it, and the entrance closed by means of gates or caissons.

The general dimensions of the basin at Pola, determined by the magnitude of the floating dock, were as follow:

Width inside the enclosing walls	211'	6"
Length	-	- 311 6
Depth from the top of the walls to the stringers in the floor of the dock	-	- 17 1½
Depth from the level of ordinary high water to the top of the stringers	-	- 13 0
Depth from the level of ordinary low water to the top of the stringers	-	- 11 0

The maximum difference in the hydrostatic head, inside and outside the basin, existing during the progress of the construction of the basin, was 20 feet.

Detailed surveys and sections of the site were taken, so as to determine the precise contour of the rock, and of the mud overlying it, which varied in thickness from 2 feet to 12 feet. As the rock was unfitted for holding, or even for receiving sheet piles, except when they happened to strike a fissure,

it was decided not to use the ordinary clay-puddle coffer-dam.

The material selected for the walls of the basin was Santorin béton, composed of Santorin earth,—a volcanic product from the Greek island of Santorino,—and limo paste, in the proportion of 7 to 2, forming the hydraulic mortar; to this was added 7 parts of broken stone, the mixture being made into a conical heap and tempered by exposure in the open air for from one day to three days, when it was ready for use. Of this béton extensive wharves and moles had already been constructed at Trieste, Fiume, and Pola; and, as it had been found durable and efficient, was moderate in cost, and obtainable in any quantity, it was considered that no better material could be determined upon for the walls of the Pola basin. It might be mentioned that the largest blocks previously made were those at the mole of Fiume, which were 25 feet in vertical depth, 22 feet wide at the top, with a batter of 1 in 4 or 1 in 6, and 50 feet long.

It was believed that, by adopting proper precautions, the mud which covered the rock bottom would form a suitable foundation for the walls of the basin, provided that a water-tight joint could be made at the bottom of the wall, for there could be no leakage or percolation through the béton, so long as it remained uncracked by unequal strains or settlements. It was, however, assumed that such cracks would occur, and that it would be necessary to provide for such a contingency.

A wall of a plain rectangular section was decided upon, the thickness of which was determined with reference to the fact that the foundation consisted of greasy mud, lying at angles varying from 2° to 10°, which would render a slip possible. Joints were made across the wall, at intervals of from 40 feet to 90 feet, in order to form weak places, which, being selected with reference to the nature of the bottom, would in all probability determine the location of any cracks that might occur.

It was ascertained by calculations, based upon the data afforded from a knowledge of the contour of the rock bed and the mud bottom, that no crack could exceed 6 inches as a maximum, and the ends of the blocks marked the localities where the settlements would probably take place. To check the passage of the water through the wall at these points, as well as to prevent the blocks from moving laterally upon one another, a rectangular post, 18 inches by 24 inches, was inserted vertically in each of the joints, reaching from the upper surface of the block, through the mud, to the rock bottom below. These posts projected 12 inches into each block of béton. Subsequent experience proved that this device was thoroughly efficient, the largest crack, which had a maximum width of 5½ inches, not admitting any water. The thickness of the walls varied from 15 feet to 20 feet and 26 feet. The floating dock entrance was placed on the north side, and was adapted for an iron caisson to close it. This entrance was 120 feet wide in the clear, but the caisson measured 128 feet along the top line. The pump well was situated in the south-west corner of the basin. Great care was taken to make the stage piles stand vertically, as they were to remain permanently in the walls. The vertical diagonal bracing between the piles was removed as the béton was filled in. The enclosing sheet piles were carefully squared, so as to obtain perfectly true faces, for the purpose of obtaining tight joints, and to give the béton walls, of which the sheet piles formed the moulds, a fair surface.

To facilitate the operation of driving the piles in line a machine was specially devised by the author, and termed by him a "spider." This consisted of two horizontal timbers, 35 feet long, placed parallel to each other and kept 12 inches apart (12 inches being the thickness of sheet piling) by distance pieces. From the forward end of these timbers, two other timbers, also 12 inches apart, sloped backwards and upwards, while at about 8 feet from the same end an oak block was passed

between and bolted to the horizontal timbers, and this also sloped backwards and upwards, until it intersected the other two raking pieces before described and was bolted to them. This frame was hung by two vertical rods of wood to the staging above, and was free to swing to and fro; ropes and tackle were attached at the rear end, by which the frame could be moved in any desired direction, while, by a strong hawser fixed to the forward end, the jaws, formed by the horizontal timbers and the raking pieces, were made to embrace closely a short length of sheet piling already driven, the machine being hauled up so taut by the hawser that the raking oak block pressed against the face of the pile. The distance at which the "spider" was suspended from the staging was such, that the end of a pile about to be driven was engaged in the guide formed by it before its vertical position was affected by its tendency to float. When it was in operation the hawser at the forward end was hauled tight, and the end of the pile, pressing against the guide, extended the rope sufficiently to force the "spider" back, and permit the pile to pass and be driven in its exact position. It was found by experience that with this machine at least double the amount of work could be done, and all the piles were kept exactly in their proper position.

When the sides of the enclosure for one block had been completed, and the cross dams and the vertical timber joint before described had been put in, the section was bolted together above the level of the béton work, and the operation of filling in was commenced, the average time required for this being two weeks. After the walls had been finished, the tie bolts clamping the sheet piles against the sides of the blocks were gradually loosened, to enable the former to settle freely, and to compress the mud from below. At the same time the interior rubble wall was built upon the top of the béton, to a level above high water, to form a dam. The sheet piles were subsequently cut off by a circular saw, and the exposed ends were covered by an external sloping embankment, or apron, of broken stone and sand. The principal internal filling of the basin, having been completed as the previous work progressed, as well as a temporary clay-puddled cofferdam closing the opening for the iron caisson, the pumping machinery was erected, and on the 2nd of February, 1859, the operation of emptying the basin was commenced.

As was anticipated, the butt joints between the béton blocks were found to open, more or less, according to the character of the mud on which they stood, and the contour of the rock bed, but in no case did the timber joints fail. After the maximum settlement had developed itself, the cracks were carefully cleaned out, and filled with masonry to the depth of 1 foot from the face of the wall, and tubes or pipes were inserted in the wall, for conveying away any slight leakage that might escape without washing away the fresh mortar. Where a crack or joint appeared open on the external side of the béton walls, a pad, secured to a plank or timber, was firmly braced against it, until it was tight enough to prevent the escape of fine mortar or cement. The openings or cracks were then filled with thin grout, injected through a tube, under a head of about 10 feet above the wall. As soon as the basin was emptied, the work of laying the floor was commenced. This consisted of thirty rows of foundation piles, capped with timber 1 foot square, bedded in 6 inches of béton. Upon the top of the piles was fastened close planking 6 inches thick, and over this was laid the masonry, forming and completing nine lines of stringers, varying from 8 feet to 12 feet in width, to receive the bottom of the dock when grounded. The space of several hundred feet between the southern end of the basin and the island (Scoglio d'Olivie) was filled in, and two sets of railways, resting on pile foundations, were laid. The caisson for closing the opening to the basin was built by the Messrs Rennie, of London, and was found to answer its purpose completely.

BUILT TO SELL AND TO KILL.

A SOCIAL LESSON.

OUTSIDE every learned profession, calling, or regular branch of trade, there are bastard communities of irregular workmen, masters, working employers, pseudo-contractors, to whom the general slang name "jerrys" is not inaptly applied. These classes of tradesmen and employers are the barnacles and parasites of skilled labour; and though they belong to all paths of trade, they exist in the greatest number and power in connection with the building trades. They are the Ishmaels of operative society, and by a strange fatuity on the part of their patrons, they are not only tolerated, but encouraged to pursue their practices.

People are prone to encourage "cheap jacks" for economy sake, and the result is that Great Britain is plentifully supplied with a tribe of "handy men," who will undertake a job at any price, from the building of a cottage to the upholstering of a coffin.

Why have we so many badly-built houses, whose defective drainage kills off two or three of the members of every family who inhabit them? Simply because the work is *scamped*. Why does the plaster fall in flakes from ceilings and walls? Why do the walls spume out a deadly ooze, the paper-hangings rot and peel off, and the timbers of the floor and the trimmings around the windows and doors shrink and collapse in a mouldy and offensively smelling dry rot? The cause is apparent to all who have a practical knowledge in these matters. Plainly and undeniably it is because the materials of construction are of the very worst description, and that the work is "scamped" or performed by workmen who do not know their business.

The carpenters and joiners of the "jerry" contractor are simply "handy men," and not skilled artisans. The masons, bricklayers, plasterers, painters, plumbers, glaziers, slaters, smiths, employed by the same class of masters are of the same inferior kind. Houses with fanciful frontages, and at temptingly low rents, are advertised in thousands, and are to be found in all the suburban districts of London, Dublin, Glasgow, and Edinburgh. Your low-salaried civil service servants of the crown, and your newly-married banking clerks, on equally low wages, are enamoured with the appearance of their chosen dwellings, which a threepenny or a fourpenny ride in the 'bus or rail will place them beside or near. Happless young brides and bridegrooms, the honeymoon will scarcely have waned in the heaven of your joys when an indescribable uneasiness will be felt most probably by the young wife. The symptoms increase, until the husband is alarmed, and the weary doctor's first visit is made. The cause will naturally be put down by the medical man to something else, and things will rub on for the first twelvemonth until a stranger has probably appeared in the household. A sickly infant and an invalid wife are not very cheery prospects, but Providence may be thanked for his mercies if there are not, within eighteen months or two years, a sickly young husband seen mourning over the grave of his wife and child.

The conclusions we have drawn are from life, and are inevitable, and are of daily occurrence. The cause need hardly be hinted at. The house was built to "sell and kill," and does its duty with a painful precision that no enlightened architect or sanitarian will attempt to deny. Now that we have Truck Commissions, Sanitary Commissions,

and others of a social and educational character, it would be desirable, in the interest of the public health, that the laws relating to the erection of human dwellings should be a little better defined, and the regulations more stringent. The number of cubic feet of air in each room on the line of frontage is a small concern, when viewed in relation to the whole requirements that are absolutely necessary to be attended to, in the construction of a habitable house:—the soil in which the foundations are laid, the depth of the foundations, the gradient and outfall of the drainage, and the construction of the ashpits and water-closets. It ought also to be known, if it be permissible and consistent with the rules of sanitary science to use common road gutter for mortar and plaster materials; and if rotten and sappy timber and poisonous paints, with no fixed properties to counteract their certain exhalations, are still admissible. These and various other important matters are momentous questions in this age of boasted civilization. A little cultivated garden of blooming flowers breathing a perfume is no doubt a pleasing sight; but were every flower in the garden to fling its fragrance in through the open window-sash, or to stretch like matted woodbine up the walls, the skeleton of disease and death would still lurk beneath the blossoms and leaves in connection with the houses we are describing.

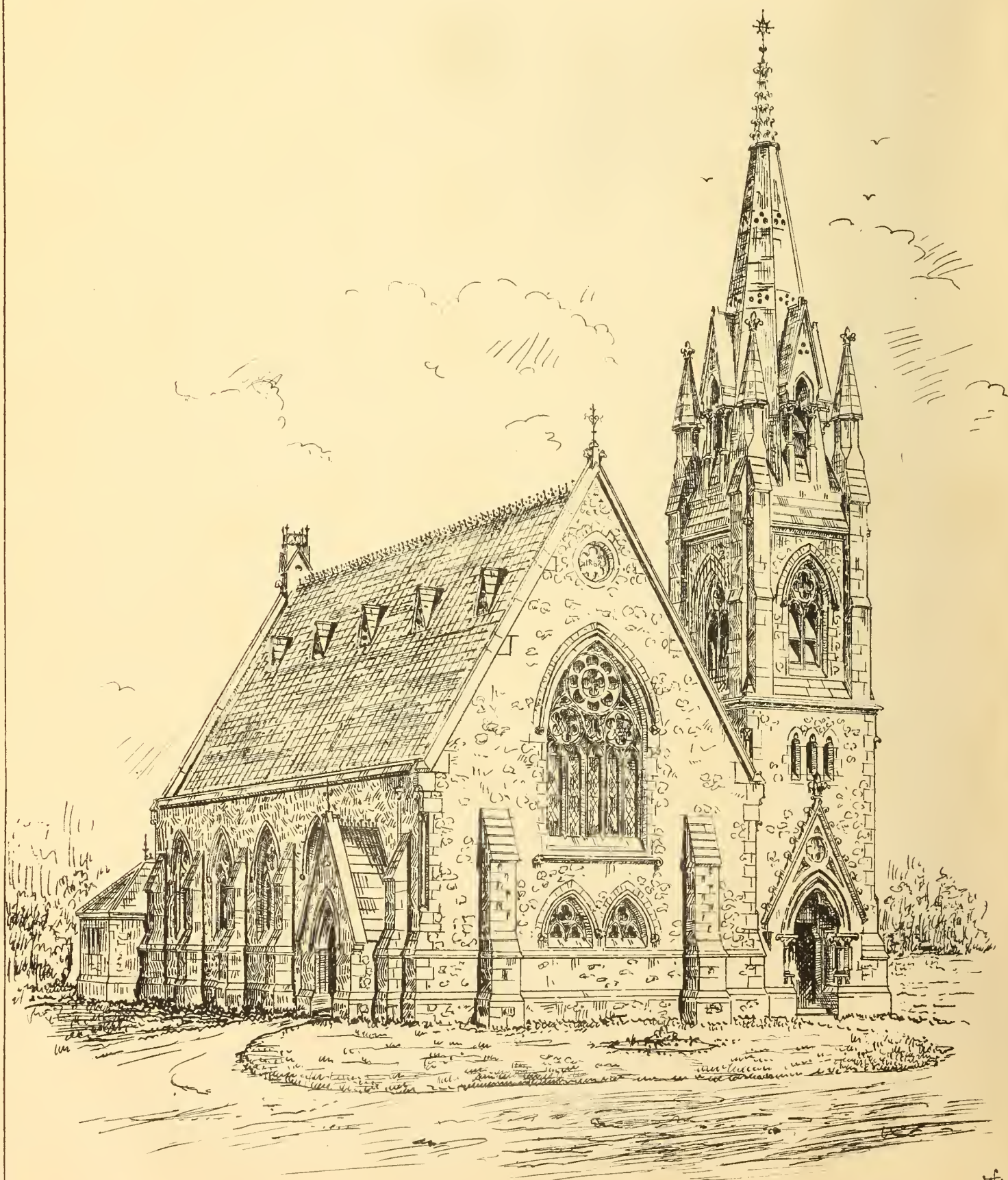
No enterprise or industry is legitimate or commendable when directed towards bad and selfish ends. We may set snares and traps for destroying vermin, but the indiscriminate slaughter of men and women, of human life, of soul, perhaps, as well as body, is too appalling a carnage to accept, without protest; and we do earnestly and without reserve protest against the continuance of this building system rife in our midst, which kills off yearly thousands of men, women, and children. Examples of condign punishment are needed, and that they may be salutary in their effect, they should be severe in their operation. A Minister of Public Instruction must be supplemented by a Minister of Public Health, if the homes of rich and poor alike are to be improved in the future. If the intermittent recurrence of plague and epidemics are to be rendered powerless or almost harmless, sanitary precautions are indispensable. Education, by being more general among the masses, will assist to that end, but compulsory and not permissive measures must be still resorted to. Where a public duty is optional, it is sure to be neglected, for what exists not as a law, in such matters, will exist with the elements of an evil, and evil doers will not be amenable for the injury they inflict on society.

Good houses, and many, are still erected, and able and enlightened architects are not a few in the land. It is not of those we speak: their interest is the public interest, and their works are the best credentials of their character. Our condemnation touches alone a race of speculating scamps who work by the bulk and murder by the job, and whose ethics of fair dealing is foul play, and the canons of whose order is "Cheat honestly if you can," i.e., cheat with a semblance of honesty.

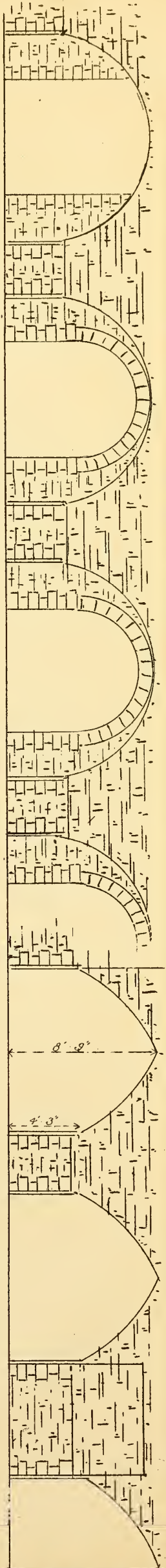
We may hereafter show how the cards are played, how the system is worked in detail, and how paper, lath and plaster buildings are designed by the running perch, and built up by the square mile.

Will the public believe us—hearken to us? Perhaps they may when we bring the vital statistics of life and death to their very doors,

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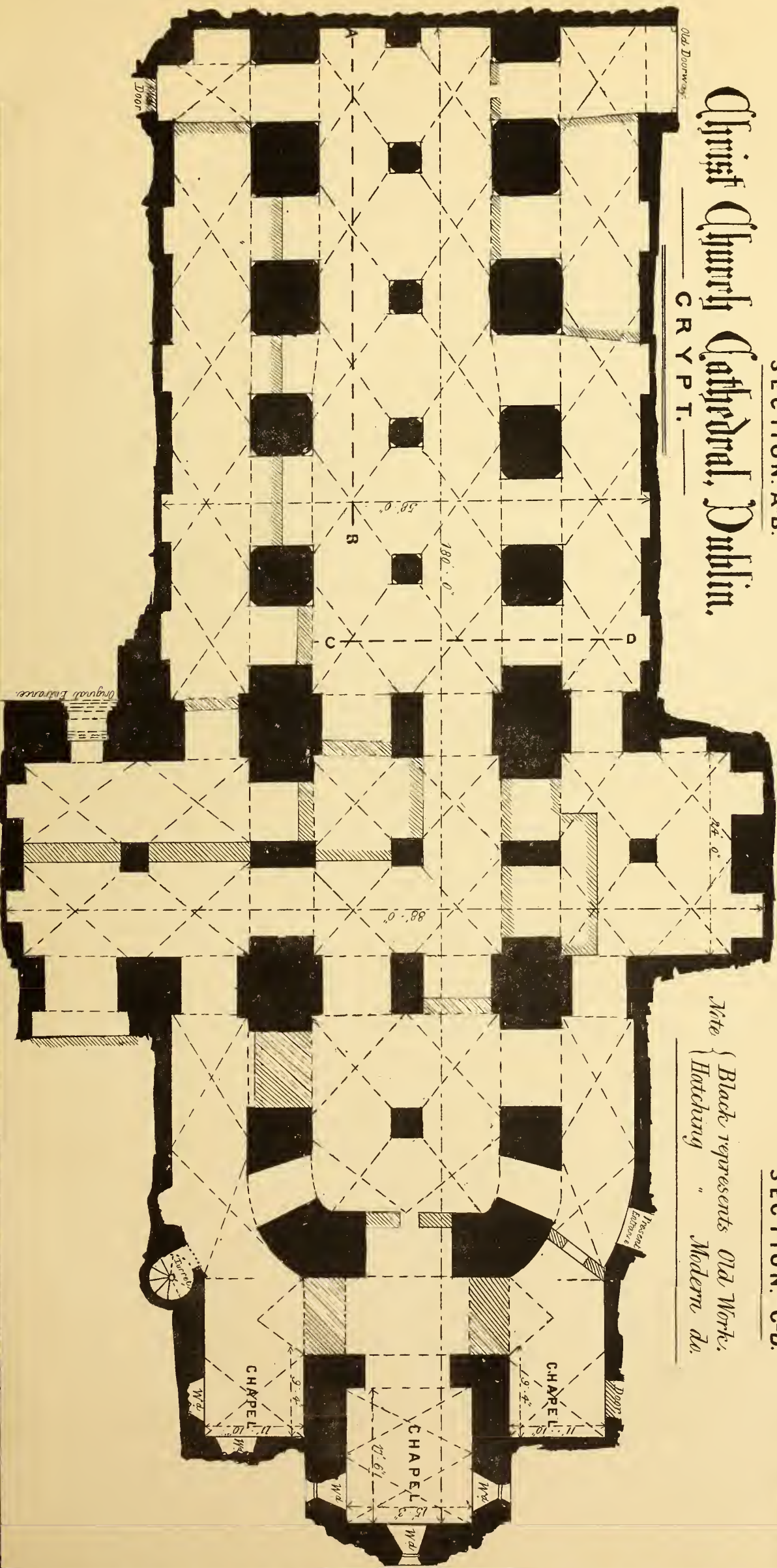
SECTION A-B.

Christ Church Cathedral, Dublin.

CRYPT.

Note { Black represents Old Work,
Hatching " Modern do.

SECTION C-D.



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and strike "Another Blow for Life," as one benefactor of his species amongst us has already done, that his fellow worm might live in health and vigour the limited span upon this earth that God assigned to him.

FLEET-STREET, LONDON.*

FLEET-STREET is the most famous of the London streets. It is only about a quarter of an English mile long, running due east and west. Holborn is parallel to it on the north, about two hundred yards off; while the Thames Embankment is south of it, about a similar distance. Towards the west the Strand is a continuation of it; between them stands Temple Bar, which marks one of the boundaries of the city. Ludgate-hill is the eastern continuation, though it is separated by Farringdon-street. At the top of Ludgate-hill stands St. Paul's.

To a stranger Fleet-street must cause great disappointment. You might expect to find a grand, wide, and well-paved street,—you'll find nothing of the sort. The houses are generally of very dirty brick; the architecture is flat and uninteresting; the houses are very uneven in height; the street is crooked. There are some of the oldest houses in London in it,—those whose stories vie with each other which shall hang over the middle of the road the most. The Palace of Cardinal Wolsey is still standing; it is immediately opposite Chancery-lane.

Fleet-street is noted for its stationers, printers, publishers, dentists, and taverns. Newspaper-offices stand first on the list; then taverns, many of which are not in the main thoroughfare, but up narrow passages. In this street are published the comic papers—*Punch* and his little brothers, and all the penny daily papers.

Fleet-street is a street of memories—memories of great men and great deeds. It is a rich mine of gorgeous wealth to the historical and biographical student. All the mightiest names of the mightiest literature are associated with it. It is the Downing-street of the Fourth estate. It has a boundless empire—the empire of thought. By its papers it thinks for the world. It guides it—to right or wrong. It asserts its freedom fearlessly. It is bowed to by statesmen, politicians, philosophers, artists, poets, historians, novelists, dramatists, musicians, actors, inventors, and lawyers. Everybody reads what it says—in the railway, on the ocean, in the omnibus, on the mountain, in the library, on the steam-boat. It is a dear old, narrow, fusty, dirty, historical street. With all our go-a-head notions, don't Haussmanize it; leave it just as it is; don't widen it. Let us jostle the living rulers of thought that walk in it. Let it be choked by the traffic that is too much for it. Let its noise and its din be as great as ever. Please, modern improver, don't touch it.

Let us walk up Fleet-street. The *Punch* side is the more interesting, so let us take it. *Punch* inhabits the warm side, the sunny south. The Post-Office has not yet re-numbered the street; the new system of putting odd numbers on one side and even on the other is a great convenience, as yet only used in new neighbourhoods. When the numbers are so placed, you can the more readily find the house you are looking for. The number you may want is even, therefore you take that side of the street. The idea ought to be carried out in every city. If it were so, much time would be saved, which is now wasted in almost needless searching. Perhaps it may be speedily done; the people and Parliament have at last woke up to the fact that the Post-Office wants many reforms carried out. The wheels of that useful machine want lubricating.

At the corner of Farringdon and Fleet streets was a linendraper's shop, where that hoarding is covered with advertisements, but now there is being made a wide new

street, to join to Holborn just at the top of the Viaduct. The cigar shop at opposite corner is also coming down to form a circus similar to Oxford or Regent circus.

Next door to the cigar shop, No. 103, is the *Sunday Times* Office. It is more of an ordinary weekly newspaper than what its name would imply. Next door is the *Midland News*, an illustrated paper, which is becoming widely known.

In Bride-lane is Coger's Hall, a tavern of spouting fame. A discussion society was formed there over a hundred years ago. From thence it went to Shoe-lane, and finally it is now settled in Salisbury-court. Dan O'Connell and Curran were once members of it. A few doors further on is Charles Knight, the publisher, and a step or two on is Bride-passage, at the end of which is St. Bride's Church. The church was built by Sir Christopher Wren. The spire is considered to be the handsomest and most graceful in London. In one of the houses overlooking the churchyard, Milton lived. Some few years ago a fire burnt his and many more houses down. *Punch* office occupies the entire of one side of the passage, with just one window in Fleet-street, No. 83. It's a nice place to appoint to meet anyone, as *Mr. Punch* kindly puts in his numerous windows several hundreds of his cartoons; so time is pleasantly passed, and very likely you are glad your friend is not punctual.

Opposite there, No. 125, is the *City Press*, and 127 is the *Morning Advertiser*—a paper which is a favorite with the publicans. The Bungs call it the "Tizer." No. 129, at the corner of Shoe-lane, is the leader of Conservative thought—the *Morning and Evening Standard*. Some of the brightest writers of the Press are engaged on it. In Shoe-lane, Chatterton the poet lived; what a pity we lost such an original so early in life! "Youth is a blunder; manhood a struggle; old age a regret." Such thoughts are sad—let us walk on. We'll keep our own side. Passing 84, the *Scotsman*, and just at the corner of Salisbury-court, No. 76 was Richardson's book shop, where he printed "Pamela," and other of his novels. There Hogarth and Johnson visited him; Goldsmith was once his reader.

Opposite, again, is the *Daily Telegraph* office; this paper is about the best-abused of all our London papers. Its circulation is enormous, about a million and a-quarter copies a week! Fancy what an influence it must have on its thousands of readers. The office is a large building, with a dirty white stucco front and masses of black paint about it, which makes it appear more like an undertaker's in the New-road, where is advertised, "Funerals performed with economy and respectability."

It's about lunch time. We had better cross to a few doors further on, and get a chop at the Cheshire Cheese, in Wine-Office-court. Goldsmith used to live there before he moved to the Temple. He wrote the first part of the "Vicar of Wakefield" there, and, perhaps, the Cheese was once his tavern.

Two doors further on is the *Sporting Life*. You are told so by the clock. There are twelve letters in *Sporting Life*; each letter takes the place of Roman figures on the clock. It's the fashion in this street for the newspapers to so advertise themselves, that the name can be read from the street easily. The S of sporting commences at VIII., the T stands for XII., and so on. Perhaps it means that the newspapers have gone in for annexation, had a battle with Time, conquered, the Old Boy then annexed him. Annexation is all the rage now. When we passed the clock the annexation was F past G. Our watches said half-past three. We will cross to our own side again to have a look at this week's *Fun* and *Judy*. They put their copies in their windows, so we'll just dawdle to see what they show.

At the corner of Whitefriars-street, and No. 67, is now the *Daily News*. From here the *Star* newspapers used to illumine the firmament morning and evening.

Opposite again is Peel's Coffee House,

though now a modern gin-palace. There the *Times* is filed, and nearly all the country papers are taken in, though the *Chronicle* is not amongst the number. That fine building there in Fetter-lane is the Record Office: the architecture is Tudor, you know—buttresses and small windows, with a tower or two scattered about; it is built of stone, and is thoroughly fire-proof. We English, so often, if we build anything strong, must needs make it ugly. This building is an exception; it is handsome. There are about 250 rooms in it; they will hold about 750,000 cubic feet of records. It seems ridiculous in telling you that in about another twenty or thirty years it will be all occupied. To give you a larger idea of the Records of this Realm, there are about 5,000 volumes referring to our colonies alone. The Domesday Book is kept there.

Passing the "Rainbow" and "Dick's," we come to the next archway, which is the principal entrance to the Middle Temple. On the keystone of the arch is the date 1684, above which is sculptured a very curly lamb. In its right fore leg is a staff with a flag at the end of it. This is the well-known crest of the Middle Temple.

The Temple is loved by us, on account of the men that used to live in it. Here is a list enough to make any place famous. Chaucer, Spenser, Dr. Johnson, Gower, Beaumont, Congreve, Wycherley, Cowper, Sheridan, Edmund Burke, and Charles Lamb, who was born in it; Lords Mansfield, Eldon, Erskine, Clarendon, Coke and Selden; Judge Jeffreys, Plowden, Blackstone, and Oliver Goldsmith, who died and was buried there. In the Middle Temple Hall was first performed Shakspeare's "Twelfth Night." We had hoped to have kept very close to our subject, but the Temple is so world-noted, that its fame must be our apology for rambling.

But to keep to our own side again, the southern side, we come to "Child's Bank," which is built on the site of the Devil's Tavern, where Ben Jonson was Sir Oracle. Boswell often speaks of it, and Swift also in his letters to Stella. Close to it Ben Jonson, Dr. Johnson, and Goldsmith used to live. Many a drinking bout those worthies had had there. The flowing bowl has many a time passed round the company, well spiced with wit and sweetened with mirth.

Our stroll is almost ended. We have come to the limit—Temple Bar. Formerly a chain barred or marked the boundary of the Cities of London and Westminster. Then a wooden house, built across the road, took its place, but that shared the fate of many more in the great fire of 1666. In 1672 Sir Christopher Wren built the present structure, but its fate is doomed, as it is a decided hindrance to the traffic. It is in a very dilapidated condition, horribly dirty, and sadly out of repair. It is one of the landmarks of London. If we had not a few of such finger-posts, we should never be able to find our way, or direct strangers. It has been used as a place for ceremonials, pleasant and unpleasant. The heads of some of the traitors, in the rebellions of 1715 and '45, were stuck on pikes, and placed on the Bar as an example to any other rebel. The appearance of Temple Bar is by no means prepossessing. There is a flat-centred arch, through which carriages can only pass two abreast. On each side, over the causeway, there is a semicircular arch—very narrow. The building is about fifteen feet through. Above the large arch is a window, admitting light to a room which Messrs. Child use in their banking business. By the sides of the windows are two niches, with two very debilitated looking statues, either handless, noseless, or otherwise decayed. In the niches towards the City are James I. and Elizabeth. In passing under the arch we find there is another window and two niches, with similar conditioned statues of Charles I. and II. That is towards Westminster. The gates are still there, though they look quite in the same state as the statues. High up above the window is the remnant of an inscription, but time has put his finger on it and rubbed it out.

* Abridged (with some corrections) from papers in *Coleraine Chronicle*.

LECTURES ON ARCHITECTURE.*

My first appearance here as a lecturer is to me a matter of anxiety and regret; anxiety from my conscious inability to do justice to the great topic of our art, and unfeigned regret for the reasons which have prevented you from hearing it treated, in his usual masterly style, by our Professor of Architecture. All will, I am sure, agree in expressing a sincere hope that, after a short abstention from his most pressing cares, we may have the pleasure of again welcoming Mr. Scott in this place, in restored health and vigour. I may, perhaps, before entering on the subject of my lecture, bespeak your indulgence for myself, suddenly called on to address you, without time or opportunity for special preparation. It is also one of the difficulties of the lecturer, himself an architect, to feel only too acutely the inferiority of his practice to the ideal on which it is his duty to insist. Moreover, an intrusion into a regular course is in itself a difficulty. Sincerely trusting that such intrusion is but temporary, I shall only ask your attention to-night to some general principles which affect our art, and indeed the art-knowledge of the country, and shall then briefly touch on some of those essential qualities in architecture which appear to merit the special consideration, as well of those who love as those who practise it. If, in so doing, I may appear to travel somewhat beyond the region of architecture, pure and simple, it will be from a conviction akin to that of the physician who looks to the general health of an individual before dwelling on partial disorders. By taking this course, my lecture will inevitably assume an introductory character, but I trust I shall thereby avoid the risk of interference with any points of detail which the Professor might hereafter desire to treat in a more connected manner, or with a view to the development of any complete theory of art. I shall thus endeavour to leave the stage free for that resumption of his teaching at which we should all rejoice.

It is, indeed, very necessary that in the practice of our art the main guiding principles should be well understood. Without a clear perception of them, there is ever, and perhaps especially now, a risk of drifting into an architectural chaos. I shall, therefore, ask you to-night to consider the present position of architecture, and the reasons of that position. The true principles, which have ruled the past, and on which progress must be based in the future, will then claim our attention. If art be long, and life short, this is pre-eminently the case with architecture. It is scarcely possible to fathom all its depths. It has always instruction for the most learned, a new joy for its skilled devotees, and at the same time pleasure and delight for those who can read as they run. There has never been a time in the world's history when architecture did not assert and prove its importance. To-day, it is true, there may be discouragements, but these, when examined, will be found to arise from special circumstances. Architecture has only to be true to herself in order to hold her own; but to do so she must remember her dignity as a living art, and must not be content with the trappings and shibboleths of the dead. Other branches of art may be finite, but not so architecture. If it be in one sense fettered by the material conditions which are essential to its realisation, it may see in them, on the other hand, a boundless scope for infinite advance and improvement; only it must know in what direction to look. Allied to science, ever advancing, ever learning, there can be no reason why our art should not share and illustrate its glories. It may be that its future triumphs may differ in kind from its past glories, but there can be no reason why they should be less conspicuous. It has ever been the special privilege of architecture to illustrate its own epoch. The tombs and temples of Assyria and Egypt are eloquent of those who built them, in the same degree as are the temples of Greece, the

monuments of Rome, and the cathedrals of Mediaeval times. Nothing can be more touching than the intensely human desire for permanence which seems to pervade these works. The builders of the Tower of Babel did but illustrate man's craving for something that might remain—a passive rebellion against the dread fiat, "Thou shalt surely die." And so in all ages architecture has been the central point of those associations which have tended to elevate the mind from the sordid cares of the moment, and fix it on the glories of the past and on the hopes of the future. A natural conservatism has therefore been the product of the love for our art, and in no day has this been more evidently displayed than in our own times. Indeed, it may be feared that with us its influence has not been wholly for the advantage of art. The world is only at the beginning of its education, and each day adds to the sum of its knowledge. To explore the secrets of science and natural philosophy, to apply the discoveries of the closet to the comfort and well-being of millions, are now the noble duties of the best among us. By the invention of printing, the human child (if I may use the metaphor) learnt to speak. By the discovery of the steam-engine it began to move. Electricity has taught it to concentrate its energies and to use its powers, and seems to indicate a boundless extent of future acquisitions and progress. Shall architecture lag behindhand? It has never done so before. Each age has told its own story in stone. The feelings of every epoch have found in it their appropriate expression, and loyalty to his art will not permit the artist to despond for the future. If, indeed, he allow himself anxiety on the subject, it can only be from perceiving on the one hand something of a tendency amongst architects to regard archaeology as architecture, and on the other a disposition on the part of the public to deny to art its rightful place in the economy of things, and to reject its claims as a noble and elevating instructor of the people. I have just said that every age has told its own story, but this statement must be limited in its application. In modern times architecture has even seemed to renounce its claims to originality, and to be content with the subordinate position of an imitator. It has resulted from this that works are too often valued for their technical correctness as copies rather than for the qualities of art which they display. Architecture has been hastily assumed to be incompatible with utility, and we have been expected to be content with its dry bones. It must, however, never be forgotten that architecture, though a fine art, is also a useful art, in a manner distinct from its sisters of painting and sculpture. It is subject to conditions from which they are exempt. It fulfils useful functions, of which they have no knowledge. As a fine art, it is never complete without their aid, but it also depends for its perfect success on its more or less skilful adaptation to useful ends. Hence it follows that an architect must study convenience, and must be guided by common sense, if he is to produce really successful work. If he practises his art in defiance of common sense, failure will result as surely as from any negation of the higher qualities of art. This may seem the assertion of a truism, but in reality common sense is not common, and its legitimate influence in architecture is too often overlooked. Thus, in an age which revels in the facilities given by the employment of iron for covering large spaces, we frequently see the timid constructions of bygone days copied even to the smallest details, and the province of true construction abandoned to the civil engineer. Interiors where the powers of seeing and hearing are all important are encumbered with useless columns, for the sake of supposed architectural effect. Houses are built like castles, and light and air denied to their inmates. All this is degrading to the character of true art; and, speaking to its younger practitioners, I may perhaps venture to ask them to consider if the prevalence of such ideas among architects may not account for much of the general

apathy and ignorance about architecture of which there is so much reason to complain? For we are often told that our art does not at present command the respect and sympathy which are its due. There is probably no civilised country where art and its professors receive less of public honours and rewards than our own. Men of high cultivation, who would shrink from avowals of ignorance of science or history, think it no shame to know nothing about art. Indeed, even those who from circumstances might seem bound "to affect a virtue if they have it not," sometimes appear to take a special pride in showing their low estimate of its civilising influence. It is scarcely possible that in the capital of any other cultivated nation the exclusion of art from a public building could be made a matter of public congratulation. There was a time when our leading men thought otherwise, and used far different language; and it is to be hoped that in art, as in other matters, means may even yet be found to "educate our masters." In a really art-loving community a different state of things would be demanded, and ignorance would, at least, be unable to boast itself. I have already referred to some of the causes which may have served to bring about low ideas of our art, as far as they relate to the action of architects themselves. But, in truth, these are merged in the greater question of education. Architecture is now a profession, and on its fruits its professors must live. This circumstance has an important effect, and may render the production of masterpieces of art difficult and uncertain. One result it certainly has, namely, to leave to the architect a diminished responsibility and freedom of action. A true artist will, of course, assert his legitimate influence, but in the practice of a practical art like architecture, the views and tastes of the public must be considered. There is, consequently, too often a *fashion* in architecture. Now a fashion is not in itself a necessarily bad thing. We have already seen that bygone ages have left their marks in the world's history by building after the fashion of their day. We know, when we see the sculptures and hieroglyphics of the Egyptians, that if we can decipher them we shall be admitted into their secrets, public, social, and domestic. In other words, we shall know the fashion of their time from the records they have left of it. It was the same with times when architecture was a living art. The fashion, therefore, which is to be deprecated is something different from this. It is the fashion of copying, the fashion of arbitrarily selecting a certain form of bygone art for deliberate and servile imitation. It is the return to obsolete modes of constructions for reasons apart from their intrinsic goodness, a deliberate preference for something less than perfection. Now on these points it is not fair to wholly blame the architects. They cannot exercise their art without the public, and if the public wish to be deceived by semblances of art, it will be so deceived. There are, of course, degrees in such compliance, and the real artist will at any sacrifice decline to wholly prostitute his talents. In so doing he must, however, be prepared to stand aside in empty protest, and see the practice of the art he loves so well pass into other hands. Doubtless there is much in the state of modern architecture for which the architect must take his share of responsibility; but the first necessity for the revival and possibly the eclipse of former glories is the formation of a healthy tone of critical appreciation of his work; in a word, the diffusion of art-education. The circumstances of our day appear to be specially favourable to this diffusion, at a time when the absolute need of education has been solemnly recognised by the State. Knowledge is power, and the true policy of a community is to secure their connexion. If no other sign of the world's progress were evident we should find it in the increasingly-admitted obligation to procure for the masses that which they cannot obtain for themselves. Where in Egypt, Greece, or Rome are to be found the hospitals and schools which are the sign of this now-confessed public duty?

* By Mr. E. M. Barry. Read at Royal Academy, London. Extracted from the *Builder*.

Costly and magnificent buildings were there, devoted to the superstition, the cruelties, the vice of the times; none for the relief and elevation of suffering humanity. There is much in the experience of the day to jar rudely on our ideas of progress as affecting human happiness. War, terrible and dread, among civilised nations, must seem to the watching heathen world a strange commentary on the old saying, "See how these Christians love one another." The curse of pauperism at our doors ought to cause us anxiety and misgiving. A thousand social sores call for remedy, and bid the philanthropist-reformer give no truce to the opposing powers of evil. But in spite of the urgent calls for improvement around us, it may be claimed for the present age that in none has there existed a more real desire to improve, in none has the principal *raison d'être* of government been so readily admitted to be the maximum happiness of the greatest number. We may therefore look forward with confidence to sure, if slow, amelioration, to be obtained by the spread of real and thorough education. And from this place I may perhaps be allowed to say that no education can be real and thorough from which the joys of art, with all their elevating and civilising influences, are excluded. Can it be doubted that in Greece every man, from the noble to the peasant, entered, more or less, into the triumphs of art, which were to them as household words, and were so conspicuously displayed that each man might feel a sense of property in them? May the day come in our own country when the toiling masses may assert their right to insist on such an employment of the public resources as may provide, on a worthy scale, museums, pictures, sculptures, and other works of art for the instruction and delight of a great and art-loving people. It will be unfortunate for all if our boasted education is to stop short. Knowledge without education may, in that case, prove a curse. The imagination, the love of beauty, the desire to gratify the senses, will exist whether they are cared for or no. Shall they be relegated to the debasing influences of excess and debauchery, or shall art be called in to instruct, to refine, to delight, to co-operate with religion in bringing out the God-like part of our poor human nature?

PROFESSOR RUSKIN ON LANDSCAPE.*

PROFESSOR RUSKIN delivered the last of his lectures on Landscape on Thursday, February 23, in the Theatre of the Museum at Oxford. The subject of it was, "The Relation of Form to Colour in the Greek and Gothic Schools of Painting." We must always remember that between the various schools of painting the difference is only one of degree and of tendency: it is not that the one neglects what the other pursues with the utmost eagerness, but that it pursues it less ardently; it is not that the one is entirely wanting in the skill peculiar to the other, but that it possesses it in a less degree. At the same time, there is a sufficiently marked contrast between the schools of crystal and of clay, as we may call the Greek and Gothic schools respectively. The former is chiaroscuroist, the latter colourist. The aim of the former is tranquil activity; its ideal is *ἀνευθερία*; it seeks to make that real and material which was before indefinite, to see all things truly. The aim of the latter is passionate rest; its ideal is *σάρασις*; it teaches us to see all things dimly. Yet it is difficult to explain the contrast between the two schools without apparent contradiction, since each contains ideas which seem to be irreconcilable. The Greek school is visionary and obscure, and yet in its results it is real and sharply marked. The Gothic school is essentially realistic in its purpose, and yet it is at the same time mysterious and soft in its execution. The excellencies of these two schools are united in four great painters—Titian, Holbein, Turner, and Tintoret, who are therefore sometimes spoken of as belonging to the one school, sometimes

to the other. The real fact is that Holbein and Turner were Greek chiaroscuroists nearly perfect in their adoption of colour. Titian and Tintoret were Gothic colourists who were absolutely perfect in their adoption of chiaroscuro.

All elementary exercises in colour must begin with the clearest possible separation between the various colours. As, in music, perfection consists in marking off distinctly each delicate difference of sound, so in painting every minute shade of colour must be carefully distinguished in order to attain the highest results. Some great colourists even leave dark lines between their colours, like the broad black lines in painted windows; we see this especially in Paul Veronese and Titian. In every great master of colour it is a necessary characteristic that he is able to paint each separate portion of his picture apart from all the rest, and that every juncture should be made with the greatest care and with the greatest distinctness of will. This precision of method and of touch is very noticeable in Carpaccio's pictures. They will bear the closest examination, and without being thus examined half of their beauty will be lost. It is an absurd mistake to hang any pictures of the Venetian school high out of reach or in an obscure light, as thereby their marvellous colouring is deprived of all its effect. One law may be universally observed in all painters of this school, that they make white precious and black conspicuous. They paint with admirable skill a white cloud, which comes out clear and clean, even out of a white sky. They introduce a single touch of black merely to give relief to the general colouring of their pictures, amid the extreme modesty of colour, which is one of their remarkable characteristics. They afford an excellent illustration of the rule which all great painters adhere to, viz., that the value of colour depends only on its subtlety, never on its violence; on its refinement, not on its loudness; on its being soft and genial, not harsh and striking.

The colouring of the Greek school is essentially sad, that of the Gothic essentially gay: the Gothic is always cheerful; it assumes that all nature is lovely, and never paints change and decay, but only what is bright and healthful and a fit object for our love. This is a defect in Gothic art, since it is impossible for Art to show a complete sympathy with humanity without the memory or the present consciousness of pain. Of exquisite Gothic landscape, there are, perhaps for this reason, very few existing instances, not a dozen in all. There are some which are very beautiful, but not of first-rate excellence, in the painted Missals: one of the finest is to be found in the Psalter of Henry the Sixth, where the landscape and the flowers are exceedingly lovely. It was the Reformation which destroyed the power of the Gothic school; the modern Pre-Raphaelites made an attempt to revive it, but they pursued dramatic sensation instead of real beauty, and so their highest efforts have resulted in painting wild apple-blossom with striking effect. None of them has ever succeeded nobly in painting even a head of wild roses or a mountain glade full of wild sorrel. The failure of modern painters in simple landscape arises from the idea that it is an easy subject; when they find out their mistake they are discouraged and seek to gratify the public taste rather than to paint what is in itself beautiful. Now the public mind is impatient of trammels, and is ignorant of every law of Art: hence it is easily satisfied, and is deceived by the self-complacency of the painter who pretends to an ability which he does not possess, and so blinds the public to his want of patience and of the finer qualities necessary to a real artist. What a contrast there is between the carelessness and unskilfulness of the ordinary modern painter and the accurate detailed skill of Bellini or Turner! In one of the churches at Venice there is a Madonna by Bellini, in which we are struck with the wonderful reality of a scroll which St. Jerome, who is introduced in the picture, holds in his hand. If we examine it closely,

we see that this reality arises from the fact that two whole chapters are written out bodily. So in a picture of parchments drawn by Turner, in which the deeds have all the seals and coats-of-arms most carefully and accurately painted: the actual signature by Fairfax, the Cromwellian General, is forged letter by letter, although it is so small that a magnifying-glass is required to decipher it.

In studying any school of art, nothing is more important than to gather up the right clue; we must keep before us the conviction that all things are bound together and connected one with another. Thus the Greek school pursues truth as its vital point; and if it misses this, it misses everything. Even Michael Angelo, when he tries to draw a dragon without carefully studying it in detail, does not draw it successfully, but represents it as very like a sausage; while Carpaccio, on the other hand, is always true to life; and if he draws a snake, it is, above all things, black and crawling, clinging to the dust, hideous and cunning—a fit emblem of the devil, whom it represents.

The object of the chiaroscuroist school is to get sunshine and warmth without colour; everything is drawn in mystery, and yet it represents a marvellous contrast of light and darkness, cloud and fire. In Raphael we have combined the misty distance of the chiaroscuroists with the finished detail of the Gothic. In Turner, again, we have perfect form attained, and all developed in the cloud and fire of the Greeks. His picture of Dudley is an instance in point. The scene is sketched with a most perfect accuracy: we have the roaring furnaces in the foreground, and behind we see in the distance the Church and Castle fading away into smoke and fire, to show the power of the manufactures and machinery of England to do away with all reverence for authority, whether of Church or State. In all Turner's pictures there is nothing more wonderful than his intense sympathy. In one of his sketches he introduces a scene of agricultural life: everything in the picture is neglected and unhomely and coarse; the sternness and ruggedness of the scene tell of desolation and of misery; the thorns and thistles tell of Nature's curse. The object which he had before him in drawing it was to illustrate the degraded and miserable condition of the agricultural poor of England. One of his early works represents a scene which explains to us how the Greek mythology had its origin. It is a picture of a scene in the Valley of Cluses, on the road from Geneva to Chamounix. It is full of that absolute simplicity and picturesque archaism which was the cradle and the source of those immortal myths by which the Greeks represented to themselves their appreciation of Nature's loveliness.

NEWCASTLE PIER AND HARBOUR.

WE print below a discussion which took place on Thursday week at the meeting of the County Down Grand Jury, in the matter of the Newcastle pier and harbour:—

The Foreman (Col. Forde, M.P.) said he supposed the Grand Jury had made themselves fully acquainted with the report of Mr. Coode and the report of the Grand Jury Committee on this matter. Mr. Coode's report endorsed in a great measure the report made some time ago by Mr. Blakiston, that the pier was not in a fit state to be handed over to the county at all, as the work had been very improperly done. It appeared that no mortar had been used in a great portion of the pier, where there should have been cement.

Mr. Henry said Mr. Stewart had come there, and stated that it was quite imperative on the Grand Jury to take over the pier, and that they had no alternative.

The Foreman—In the first instance the Grand Jury refused, and it was brought before the Judge, who held his judgment over from one Assizes, and at the next Assizes the presentment came up, and Mr. Stewart on that occasion said it was imperative on the Grand Jury. They still refused, but the Judge placed it on the county, and there it is.

Major Waring—We have no assurance that the £2,000 recommended in the report will be accepted.

Mr. Crawford—If the Government think it an equitable proposal that the Grand Jury have made, I

* From the *Athenæum*.

don't think we will have any more letters about Newcastle Pier.

Major McClintock inquired had they any guarantee that this £2,000, if given to Lord Annesley, would be expended on the harbour?

The Foreman said that, if Lord Annesley accepted the proposal of the Grand Jury, the Government would see to it that the £2,000 was expended on the pier in accordance with some specification.

Mr. Shaw said he felt himself in a great difficulty in dealing with this matter, as he was not in a position to say anything definite in reply to the proposition the Grand Jury had made. It appeared from Mr. Coode's report, as Colonel Forde had just stated, that the defects and deficiencies of the pier were largely caused first by bad construction; and it further appeared from that report that they arose also from the delay of the Grand Jury in repairing small damages when they first occurred. It was evident that this pier was a property that no man seemed to covet the possession of. The Grand Jury were evidently so anxious to get rid of it that they were willing, without hardly one dissentient voice, to give Lord Annesley £2,000 if he would take it off their hands. As it was a property that no man desired, it was all the more serious thing for an agent to commit his principal to anything connected with it. It struck him that any equitable arrangement should have included all parties at fault in the transaction, and he was not aware that Lord Annesley was at any fault in the matter except by giving £2,800 and various smaller sums, to assist in building the pier. It might also be that at the last Assizes he (Mr. Shaw) was at fault in saying that Lord Annesley would accept the pier on certain terms; but these were the only faults he knew of. He begged most respectfully and decidedly to decline the offer of the Grand Jury.

The report was received and adopted.

The Foreman said he thought they should by that night's post report to the Castle the decision of the Grand Jury, so that before they separated they could have an answer from the Government as to whether they considered the proposition of the Grand Jury fair and equitable.

L A W.

ALLEGED PERJURY BY A BANKRUPT.

At the Southern Police Court on Tuesday last, before Mr. Allen, James Lambe, builder, of Clanbrassil-street, was charged with having committed perjury.

Mr. George Perry (instructed by Messrs. Casey and Clay) stated the case against the prisoner. The prosecution was directed by the Bankrupt Court, under the 332nd and 333rd sections of the act, for having falsified his books, and for wilful and corrupt perjury. It appeared that the prisoner had presented his petition for an arrangement in the Bankrupt Court at the latter part of last year, and had filed an affidavit of his assets and liabilities. In his schedule he had returned three persons as his creditors—Mr. Fogarty, manager of the *Nation* office, for £100; Mr. Keown, of Grafton-street, for £152; and Mr. Connolly, of Elephant-lane, for £103 12s. The bankrupt had previously entered into an arrangement with two of them—Fogarty and Keown—to so return them as his creditors; but Connolly, according to his evidence, had refused to be a party to the arrangement. Fogarty, it appeared, attended the meeting of Lambe's creditors as a creditor, and even took the chair, and opposed strongly a proposition to turn the case into bankruptcy. Keown, it was right to say, as soon as he discovered the serious nature of the offence he had committed, gave instructions to have his name withdrawn as a creditor. The bankrupt had sworn to the truth of his schedule, but upon the examination of those three persons—Fogarty, Keown, and Connolly—they denied that Lambe owed them anything. Mr. Deering, the official assignee in the matter, had made an information, deposing to these facts, and upon that he (counsel) would ask for a remand of the prisoner. This was a case which disclosed a state of facts which could not be tolerated by creditors. The assignees felt that it was their duty to put down such a state of things; and, therefore, this prosecution had been ordered. There was no desire to act harshly towards the bankrupt, to whom they wished to extend every indulgence the law would allow, and to

give him the fullest opportunity of meeting the charge which was brought against him. The prosecution was undertaken to protect the interests of the commercial community. Counsel considered that a sufficient case was disclosed by the information to warrant the magistrate in remanding the prisoner.

Mr. Walshe applied that the prisoner should be allowed to stand out on his own recognizances.

Mr. Perry said he could not consent to that. The prisoner, of course, was worth nothing, being a bankrupt, and he should give substantial bail for appearance—two sureties in £500 each.

After a short discussion, the prisoner was remanded.

COURT OF BANKRUPTCY.—March 10.

(Before Judge Harrison.)

In *Re William B. McMaster*—The bankrupt was a builder carrying on business at Antrim Road, Belfast. Mr. Meldou, on behalf of the assignees, stated that the schedule had not been filed within the prescribed time. He was instructed not to oppose the passing of the bankrupt's final examination. He wished, however, to examine him in reference to the conditions of his affairs. In 1869 he carried a composition of 6s. 8d. in the pound. His estate was vested in trustees to pay the composition, and they were empowered to carry on the bankrupt's contracts, advancing money for the purpose, and employing the bankrupt at a salary of £4 per week. His schedule on that occasion showed assets to the amount £9,539; but not a single farthing had since been paid to any creditor on the estate, and the assets now available amounted only to £250. The bankrupt was examined by Mr. Meldon in reference to the proceeds of a contract which he had for erecting a dwelling-house for the Marquis of Donegall for a sum of £30,000. He stated that the amount remaining due on foot of this contract was less than what the trustees had advanced for the purpose of carrying it out, and it was not yet completed. The case was adjourned.

BREACH OF THE COPYRIGHT ACT.

At the Tipperary (North Riding) Assizes, on Thursday last, before Mr. Justice Lawson and a Common Jury, a record was tried in which Mr. H. Graves, Pall Mall, London, sued Mr. W. A. Mercer, of Belgrave-square, Rathmines, for £500 damages, for photographic pictures of the "Departure of the Pilgrim Fathers." Serjeant Armstrong, Q.C., with Messrs. Ryan, Q.C., and Gibson, instructed by Mr. Lewis, were counsel for the plaintiff; and Messrs. Hemphill, Q.C.; Tandy, Q.C., and Short, instructed by Mr. O'Callaghan, were counsel for defendant.

It appeared during the examination that the plaintiff sued the defendant before a Dublin jury for pirating a picture called "Broken Vows," when a verdict was found for the defendant.

Mr. Graves deposed to having purchased the original picture of the "Departure of the Pilgrim Fathers" from Mr. Cope for four hundred guineas, and also gave him four hundred guineas for the sole right of engraving the picture.

A witness named King, who sometimes went by the name of Hyam, proved that he visited Mr. Mercer's house on some occasions in November and December, 1866, and January, 1867, for the purpose of purchasing some of Mr. Graves' printed pictures, and among them he purchased five photographs of the Pilgrim Fathers, at 1s. 6d. each; he then took them back to his employer, Mr. Graves.

Mr. William Lewis, solicitor, proved to Mr. King having shown him the photographs produced after he had purchased them from defendant.

A witness named Cattermoyle, who sometimes went by the alias of Milner, deposed to his having accompanied King to Mr. Mercer's, and that after he came out he showed him the pictures he had purchased; then he went

to their lodgings, where King initialled the several photographs.

The jury found for plaintiff. Damages £100.

QUEEN'S COUNTY ASSIZES.

A DEFAULTING ROAD CONTRACTOR.

Chief Justice Monahan having charged the Grand Jury, proceeded to fiat the presentments.

Mr. A. J. Curran applied on behalf of Mr. William Dunne, road contractor. This man had appeared before the grand jury that time twelve months, when it was respited. Out of £22 18s. 3d. Dunne was paid £4, leaving £18 18s. 3d. respited until he had fulfilled his contract. He came again before the grand jury, and it was then respited again. The contractor next went before the Road Sessions, where for the first time he had an opportunity of explaining his case, and it was unanimously passed by the Presentment Sessions, but the grand jury again refused to pass it. He (Mr. Curran) now only asked for an opportunity of having the case fully gone into before the grand jury.

The County Surveyor (H. U. Townsend) said the grand jury had refused to go into the case, in consequence of its having been fully investigated by a previous grand jury. In this particular case the respite arose in this way:—Only a part of the materials required by the specification were put out on the road under contract, and he refused to certify accordingly. He would read from the *Leinster Express* certain instructions which his lordship himself had given in March, 1857:—"The county surveyor had no right to give additional time; the man was bound to perform his contract within the time, and it was very wrong to give him a day. In future, Mr. County Surveyor, never give a day to a road contractor; make them perform their agreements strictly, and then you will find after a couple of assizes you will not be exposed to these annoyances. Do not give them a single day; the more strictly a road contractor is kept to his agreement the better. My opinion is, that any man entering into a contract, under his hand and seal, ought to perform it." Under his lordship's instructions not to give a single day—

Chief Justice—I never said it so often as that.

County Surveyor—These are your lordship's instructions.

Chief Justice—What is the object of respiting it so often?

Mr. Curran—My client admits he had not the entire of the materials out on a particular day.

Chief Justice—What I said does not quite apply to a case of that sort.

County Surveyor—This occurred last winter twelve months.

Mr. Curran—We don't ask to be paid for six months after this was respited, because the contract was given to another party to be fulfilled by him. That man performed the subsequent part of the contract, but we want an opportunity of showing the grand jury we did perform our contract after we got the letter of the county surveyor ordering us to have all the materials put on against a certain day. My client is at considerable loss, and he had a man working on the contract for about six months, at 8s. a week. This man will prove we did perform our contract.

County Surveyor—He had not performed it against the particular day mentioned in the specification, nor for two months after.

Chief Justice—Was he paid as much money as really paid him for the work done?

County Surveyor—He was, my lord, and much more than would pay him.

Mr. Curran—We did apply all the stones, but the County Surveyor says, "Because you hadn't them out by a certain day, I won't pay you at all."

Chief Justice—I am not certain whether, since that, the default has not been encouraged and allowed to go on.

Mr. Curran—All we ask, my lord, is to be allowed to go before the grand jury with our witnesses.

Chief Justice—I am told by the High Sheriff the grand jury did investigate the matter on the merits, and found he had none.

Mr. Curran—It was heard on the merits on Mr. Townsend's side, but not on our side. There were no witnesses examined.

County Surveyor—He gave his evidence before the grand jury, but whether he was sworn or not I cannot say.

Contractor—I was not formally represented by counsel, my lord.

Sir Allen Walsh—The grand jury are not in the habit of examining the contractors, but we put certain interrogations to them.

Major Carden—And it was fully investigated at the present assizes.

Mr. Curran—At last assizes it was not refused, my lord, only respited.

County Surveyor—I will tell your lordship how it happened. When the case was investigated Dunne was there, and when it was respited he brought it before the judge, and asked to have it re-investigated, but he was refused. The grand jury respited it in order to give him time that he might go on with the contract, which was a continuing one. Since the last assizes he has not done a single thing to the road, which he admits himself.

Mr. Curran—Because it was taken from us.

Chief Justice—Who has repaired the road since the last assizes?

County Surveyor—When he failed to perform his contract, my lord, I had to serve him with the usual ten days' notice, and as the road was so very bad, almost impassable, I had to sub let it to another party.

Chief Justice—When?

County Surveyor—In December last.

Mr. Curran—My client went before the grand jury the last time, but expecting that the presentment would pass he was not prepared with any witnesses. We are now prepared to examine the man who was employed on the road for six months.

Chief Justice—When did the contract begin?

County Surveyor—It was a three years' contract, beginning in Spring, 1869.

Mr. Curran—When he had an opportunity of being heard at Road Sessions the presentment was unanimously passed. All we ask now is to give him the same opportunity of being heard before the grand jury.

Sir Allen Walsh—On the part of the grand jury I must decline re-opening this case. It was respited in order that the man might do the work and get his money, and he admits he has not done it.

Chief Justice—It was respited, I understand, to give him an opportunity of performing his contract after that respite, and before the next assizes, but during that period he had done nothing.

Sir Allen Walsh—Precisely, my lord.

Mr. Curran—It was not in our charge then.

Chief Justice—It was not taken from this man till last December.

Mr. Curran—The way the grand jury have put it is begging the question. Up to that time we had done the work, and then it was taken from us.

Chief Justice—I can't interfere.

Mr. Curran—It is a very hard case.

Chief Justice—It is a very hard case if men won't perform their contracts. The grand jury investigated the case, and I can't really interfere. It was not decided behind his back, as the contractor was in the grand jury room. I can't interfere now when the grand jury have come to the conclusion he has not performed his contract.

Sir Allen Walsh—It seems to be Mr. Curran's opinion if a road contractor spends money on a road, no matter whether the result of that expenditure is the keeping of the road in repair or not, he is equally entitled to be paid.

Chief Justice—That is really a mistake. I can't interfere.

MISCELLANEOUS.

ARMY LABOUR.—The committee appointed by the Commander-in-chief find, from the returns which have been obtained from the majority of the regiments in Great Britain, that the number of *bona fide* artificers available for employment at trades is very limited, being an average of 17 16.35 per battalion. Few of these have been found, on being tested by the Royal Engineer Department, to be first-class workmen. The committee recommend that the following be the regulations for securing the employment of soldiers in trades:—The pioneers of a regiment to cease to be employed on fatigue duties, or in the Quartermaster's stores. They are to consist of one sergeant, a carpenter by trade, if possible; three carpenters, two bricklayers, one able to plaster and one able to slate; one smith, able to shoe horses; one mason, able to cut stone; one painter and glazier, two plumbers and gasfitters, per battalion. The non-commissioned officer who may be selected to take charge of the pioneers should, besides being a tradesman, be able to write a legible hand, and to keep simple accounts. The work required to be done for the public service is to have priority, but, when circumstances admit, work may be done for the regiment, and even private work for officers or others, if approved of by the commanding officer. The apportionment of money earned by contract, and the payment of the tradesmen generally, must be carried out by the pioneer sergeant, under the general superintendence of an officer to be appointed by the commanding officer of the battalion. A fund to meet the cost of repairing or replacing tools, or other contingent expenses, will be kept by the regimental paymaster, and, in order to establish this fund, a contribution,

not exceeding five per cent., to be fixed by the commanding officers, should be deducted from payments made for all work performed. This fund should not at any time exceed £30. The arrangements made should be entirely with a view to the system being self-supporting, not taking into account the ordinary regimental pay or allowances received by the non-commissioned officers and men as soldiers.

USE AND ABUSE OF PATENT LAWS.—The great defects in our patent system as now administered are three. First, the unnecessary expense to which patentees are subjected; secondly, the absence of any competent tribunal for the determination of patent causes; and thirdly, the want of some authority to pronounce on the novelty as distinguished from the utility of an alleged invention as a condition precedent to its being patented. Of course there are other points in it open to criticism. But these three are those in which it appears to be most glaringly inefficient and faulty. The fees which patentees are called upon to pay amount to £175, and the incidental charges to from £25 to £50; in all to £200 as a minimum. In the United States the total cost of a patent valid for seventeen years is £7 6s. 10d. In Canada for one valid for fourteen years, it is £5, and in Prussia for one valid for fifteen years it is 1s. 6d. The gross receipts of our Patent Office are in round numbers £112,100 annually, and the disbursements include nearly £10,000 paid to the law officers of the Crown and their clerks for merely nominal services, and £20,000 for inland revenue stamps. Both these items of expenditure ought at once to be struck off, and the saving thus effected applied to the benefit of patentees either in reducing their expenses or in the improvement of the Patent Museum and Library. It is quite unnecessary that the Attorney-General, the Solicitor-General, and their clerks should be remunerated in this way, and as Lord Stanley, writing in 1856, observes, "the taxing of inventions is an expedient never contemplated by the framers of the Act of 1852, and unjustifiable even in the utmost pressure of financial distress." Again, it is very desirable that some security should be provided against the taking out of patents for inventions already known if not already in general use. At present, it has been justly remarked, there is nothing to prevent any one of us from copying the description of Noah's Ark from the sixth chapter of Genesis, embodying it in a specification, and obtaining a patent for "improvements in the construction of ships and other marine vessels." It may be said, perhaps, that patents for inventions known or in use will not hold. But they can be upset only at the risk of failure and in the certainty of a large outlay on the part of those attacking them. The outside world can form merely a faint conception of the extent to which what may be called fraudulent patents are employed as means of extortion among rival manufacturers, and the abuses to which they give rise may even be admitted to supply a colourable excuse for the agitation recently initiated in opposition to patents altogether. A permanent board of examiners ought to be appointed to inquire into the novelty of every contrivance or process it is proposed to patent. The board should be empowered either to refuse a patent or to endorse its views and a reference to the evidence supporting them on the document granting the patent privileges in the event of the novelty of the invention being doubted or disproved. A preliminary investigation of this kind takes place in Prussia, Russia, Belgium, Bavaria, and the United States. In the last named country the result is that on an average one-third of the applications made for patents in each year are rejected. By this precaution not only the public but would-be patentees themselves are protected.—*Pall Mall Gazette*.

PARCHMENT PAPER.—Some improvements in the manufacture of vegetable parchment, or parchment-paper, have recently been patented in this country, by an agent on behalf of Colin Campbell, of Buffalo, New York. By a well-known process, vegetable parchment is produced by passing common unsized paper through a bath of dilute sulphuric acid, the catalytic action of which changes the substance of the paper into an article resembling, in structure and qualities, ordinary animal parchment. Great care and delicacy are requisite for the successful accomplishment of the operation, which almost entirely depends on the strength of the acid, the temperature of the factory, and the length of time the paper is immersed. If the sulphuric acid is not sufficiently diluted, the material is charred. If, on the contrary, the solution is not of the necessary strength, and the paper is left for too long a time subjected to its action, the latter becomes partially converted into dextrine. Experiments have proved, however, that a much superior article can be manufactured by employing commercial sulphuric acid, or oil of vitriol, in an undiluted state; the new process, moreover, permitting the acid to be used in a cold state, and the operation to be carried on in a room at any ordinary temperature. Parchment-paper manufactured by this method retains

its qualities after being wetted and dried; whereas that produced by the usual process, when treated in a similar manner, loses to a great extent its pliancy, and becomes hard and stiff. The invention to which letters-patent have been granted, consists in passing the paper through a solution of alum and thoroughly drying it previous to its immersion in undiluted acid, thus preventing any undue action of the corrosive principle of the vitriol. The patentee also claims, as part of his invention, the treatment of the paper with acid during its manufacture, by allowing the web after passing the drying rollers, and with or without previous immersion in the solution of alum, to dip into a tub containing the acid, and then into a vat of water. The paper is afterwards passed through an alkaline bath, being subsequently treated with water to remove the acid. According to the inventor, written and printed paper may undergo this improved process without materially affecting the clearness and distinctness of the letters.—*Stationers' Circular*.

One of the most useful extensions of our copyright laws in recent years has been the protection afforded to trade marks, that is to the particular devices by which manufacturers choose to distinguish their goods from those of their competitors. If A discovers a new sauce which he regards as calculated to work a revolution in culinary affairs, or if B sells packages of mustard which he believes to be better than the mustard of his neighbours, he may take a boar's head, or a star, or a spread-eagle, or any other object capable of representation by the draughtsman's art, and affixing this to his bottles or his packages, defy the world—or at least so much of the world as is subject to British laws—to encroach on his domain. The advantages of this protection extend not only to the trader, but to his customers; for a motive is furnished to serve the public well when the whole fruits of a reputation are thus secured to the man who cultivates it. The trade mark system, however, has serious drawbacks, to which a member of Parliament has this week called the attention of the Board of Trade. Trade marks are continually being infringed innocently from the great difficulty of ascertaining what signs are already in use. No doubt there are difficulties in the way of registration; a horse's head, for example, might be indexed under that description, or it might figure as a nag's head, a colt's head, or under some other title. Still while infringement is heavily punished, some attempt to classify and register ought to be made; but this suggestion is equally applicable to patents and literary property. In fact the whole system of patent and copyright registration stands sadly in need of reform.—*Graphic*.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homoeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

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REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

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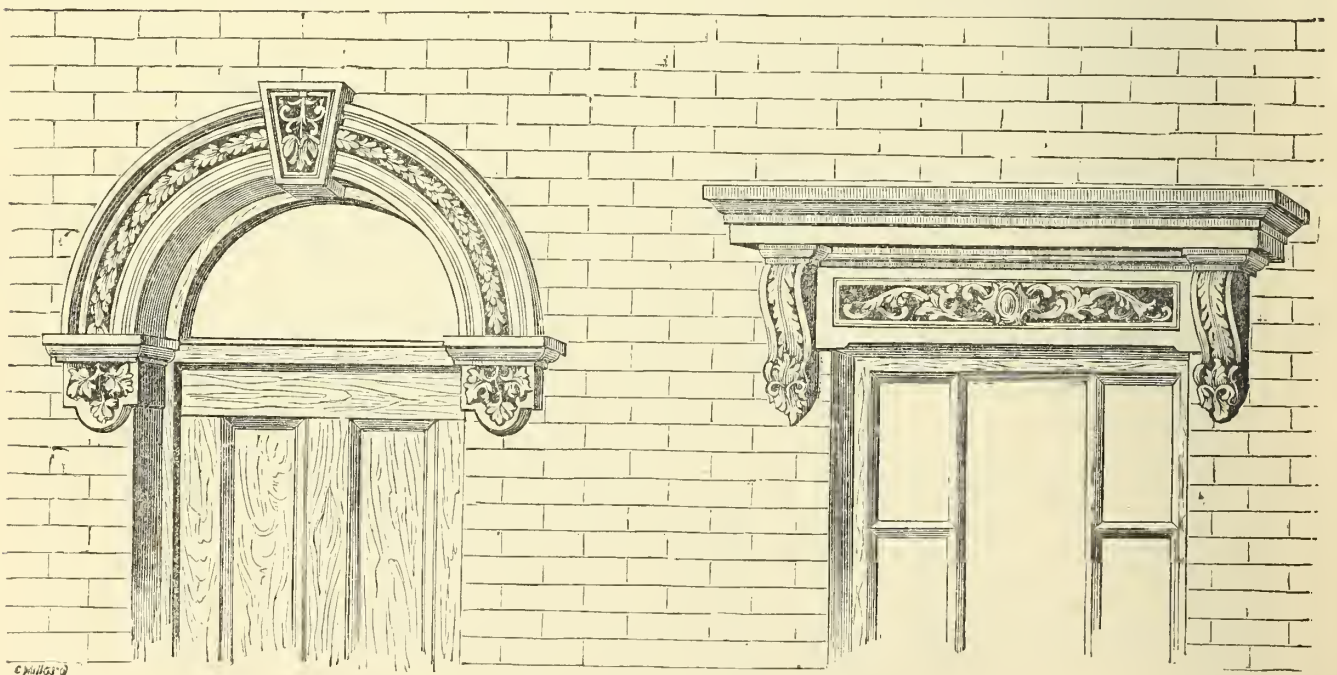
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The Irish Builder.

VOL. XIII.—No. 271.

*The Late Builders' Association of Ireland,
and its Objects.*



JOURNALISTS as well as ordinary individuals remember the more vividly the occurrences of their earlier days; and, although we cannot for ourselves lay claim to much juvenility at the period to which we will refer, we are at all events constrained to do so upon the part of the periodical which our pen has represented from its earliest commencement. It is now some twelve years and more since first we ventured upon the publication of this now matured journal, devoting ourselves through it to the interests of every class, but primarily to those with whom it claims immediate connection—the architect, the engineer, the surveyor, the builder, the operative, and even the humble labourer,—to the well-being of each of whom the pages of the IRISH BUILDER have been at all times available. For them it has been our study to support whatever would seem likely in tending to advantage their separate interests, and doing so we feel we have been promoting the welfare of all, even those who are perhaps remotely connected with building. Looking back upon the period to which we have referred, while our infantile efforts were still struggling in joyous consciousness of life, yet enabling us to overcome the numerous obstacles which lay in our heretofore untrodden path (at least so far as Ireland is concerned), it recalls to our mind an association being formed and wrought into reality, under the auspices and by the untiring energy of the late Thomas Henry Carroll. Its president, the late Gilbert Cockburn, sen., for fully half a century occupied the foremost rank among his class; its council, several of whom have since followed in the silent path of their founder and president, were men whose ability had attained for them the distinctive position with which fortune ever favours those who would try to woo and win her smiles as they should be won. This was the “Builders’ Association of Ireland,” and which, in an inconceivably short space, had gathered within its circle all who had the claim of integrity and worth to recommend them—all who occupied a prominent place in respectable practice in the country; but it is now of the past. Its monthly meetings, at first most numerous attended, dwindled down, one by one, little by little, until at length they became “beautifully less”; so much so that its founder, its hon. secretary, and perhaps one or two associates were the sole occupants of its benches, until at length it ceased to be. From whatever cause this apathy arose, there is much reason for regret, because we believe class associations of this kind tend considerably to develop what is really utilitarian both to themselves and those with whom they are in connection. Possibly one cause of its failure occurred from its principles being misunderstood, and well do we remember how its first report was received upon the part of the operatives. The association professed (and we are convinced truthfully) a spirit of amity and non-antagonism to those with whom its avocations

led them in contact with; nevertheless, by far the largest operative meeting which ever was held in Dublin took place at the Rotundo in the month of December, 1858, in opposition to it. Every workshop and every unfinished building within a circuit of some miles were for that day at least unoccupied. Operative latent talent was called forth, and oratorical displays of no mean ability were made, which would have been highly creditable but that the speakers were labouring under erroneous influences. They imagined, in the long array of their employers’ names, a huge combination had arisen to overwhelm them by the crushing weight of capital. No such views were ever entertained. The association was formed to promote general good feeling in every branch with which it was in contact, and partly to redress what it considered as grievances,—all of which still exist; to one of them we will confine ourselves in this paper, and which may be simply stated in a few words as “undefined foundations.”

All who are conversant with architects’ specifications know that in several of them (we use the word several advisedly, and do not mean all) the responsibility of ascertaining the depths to which foundations shall extend is cast upon the builder, as a usual clause in many of these documents provides “that the trenches for foundations shall be sunk to the depth marked upon the plans, and as much deeper as may be necessary to insure a solid foundation.” Now, this “as much deeper” is exactly what every builder has a just right to complain of, and is so preposterously absurd, and displays so much of a want of systemized purpose, we are surprised it exists at all. But, after all, the remedy is in the builder’s own hands. He should never accept a contract, or sign a specification, containing so ridiculous a clause. Perhaps competition drives him to it; because, if one builder should ignore it, there are many others willing to risk the chance. It may be the depths shewn on the plans will prove sufficient, but it sometimes occurs they prove sadly erroneous. We know there are architects who purposely draw their footings undefined to escape the responsibility, and they are therefore the more blameable. Would it not be an easy matter, and one which scarcely needs our suggestion, that all sections should shew a defined depth, and that the quantity eventually executed should be added to, or deducted from, as occasion would require? Certainly the client could have no reason to complain, as an equally good chance would exist for him as well as the builder, he being previously informed upon the matter; and if additional depths became necessary, it would be for his benefit—certainly not the contractor’s,—and possibly his mind would be better at ease in the long run than if, by the operation of this clause, a great portion of the profits to be derived from the contract were abstracted from the pocket of the builder. There are people who do not heed such contingencies, and who will even quote scripture in favour of their contract; nevertheless, in our opinion, the honourable man cannot recognize chance, when it is exclusively upon one side, as a portion of a commercial agreement.

We have purposely confined ourselves in this paper to but one of the numerous matters which the Builders’ Association established itself to remedy; and without undervaluing its general objects, we think this one alone should have been sufficient to have kept it in

existence so long as so oppressive and so unjust a clause remained as part of a specification, but which, we are convinced, exists only from the want of consideration of those who continue it, rather than from any desire to escape the natural responsibilities of the architect.

OBITUARY.

DIED, at his residence, Upper Leeson-street, on the 25th ult., Patrick J. Murphy, Esq., of the firm of Timothy Murphy and Son, Amiens-street, Dublin, at the comparatively early age of forty-two years. In conjunction with his father, Mr. Murphy has been for several years in considerable practice. The restoration of St. Patrick’s Cathedral, through the munificence of the late Sir Benjamin Lee Guinness, was chiefly carried on under his superintendence; and his latest work, the new wing of the Mater Misericordiae Hospital, will long remain an enduring proof of his capabilities as a builder. Originally intended for the architectural profession, he served his apprenticeship to the late Patrick Byrne, Esq., but he early threw aside the drawing board and T-square to follow the more active and remunerating duties in which he afterwards engaged. Associated for many years in every benevolent project, and with whatever would tend to be of utilitarian purpose in connexion with building, his early demise is much to be regretted, particularly in his family circle and amongst his numerous friends, where it has left an irreparable blank. Being a large and liberal employer of labour, his loss will be felt for a considerable time by the operative classes of his native city.

NOTES FROM DERRY.

Extensive new buildings in Edenballymore (vicinity of the National Model Schools) for the Academical Institute. Messrs. Turner and Williamson, architects; Mr. M. McClelland, builder.

Terrace of eight houses in Crawford-square (same locality) for Mr. John M’Ador, who has recently become the owner of this valuable property. These houses have bay windows continued up to the second floor, and are furnished with all the modern requirements. Mr. Robert Collins, architect; Messrs. G. and R. Ferguson, builders.

New offices and stores for the Foyle Rope Company, Waterloo-place. Same architect and builders.

Two fine shops and dwelling-houses in Ferryquay-street, for Mr. A. Rosborough. Mr. J. G. Ferguson, architect; Messrs. G. and R. Ferguson, builders.

Alterations and improvements, amounting to almost total rebuilding, of the extensive premises in Bishop-street, known as the City Mart, for the “St. George and Dragon Hotel.” Same architect and builders.

The Waterside Distillery having passed into the hands of the Messrs. Watt, of the well-known Abbey-street Distillery, very extensive alterations and improvements are being made, including the erection of large bonded stores and granary. Messrs. G. and R. Ferguson, builders.

A site has been purchased at the corner of Magazine-street and Society-street for the erection of a Memorial Hall for the “Apprentice Boys,” from the designs of Mr. John G. Ferguson, architect.

The Derry Chapel of Ease, in the same neighbourhood, is about to be rebuilt, from designs by Mr. John G. Ferguson, architect.

At Fahan, on the shores of Lough Swilly, Swilly House (a large erection) is well advanced, from designs of Messrs. Turner and Williamson, architects; Messrs. G. and R. Ferguson, builders.

At same place, a neat villa, for Mr. Joseph Ferris, is being built from the designs of Mr. Collins, by Messrs. G. and R. Ferguson, builders.

The additions to the convent at Strabane are in progress. Mr. Wm. Harty, architect; Mr. M. McClelland, builder.

THE INSTITUTION OF CIVIL ENGINEERS, LONDON.

We print below abstracts of two papers read before the above body on the 21st ult. (C. B. Vignoles, Esq., in the Chair). The first was entitled a "Description of a Wrought Iron Pier at Clevedon, Somerset," by Mr. J. W. Grover.

In this communication the author stated that the Act for constructing a Pier at Clevedon was obtained in the Session 1863-4, but little was done upon the ground till the spring of 1868, which was singularly boisterous and unpropitious. The works were virtually completed at the end of the same year, and had since stood well, without material damage.

The coast of Somersetshire at this spot was composed of dark cliffs of magnesian and mountain limestone, of which large fragments were scattered about the beach, the spaces between them being filled with soft mud. The site selected for the works was tolerably free from these obstructions, being a thin promontory of rock, level from right to left, and dipping seawards at an angle of 12° to 8°. Beyond this came mud 13 feet deep, upon boulders and clay. At the head, a ridge of sand, 2 feet deep, covered a bed of hard red clay, giving a tolerable bottom. The chief difficulty was, however, the great rise and fall of the tide, viz., 45 feet at springs. As the Bristol Channel was only 9 miles across at this point, the water acquired the velocity of a mill-race on the ebb, or 5½ miles an hour. Clevedon was also exposed to high seas from the south-west.

The structure comprised, first, an approach of masonry, 20 feet wide and 180 feet long, with a falling gradient of 1 in 10. Secondly, the body of the pier was formed of eight spans of 100 feet each, supported upon piers of Barlow rail piles, spreading to a wide base at the foot, and clustered at the top. From below the girders, arched ribs of Barlow rails were connected to the vertical piles. The main girders of the structure were continuous, 3 feet 6 inches deep and 800 feet long, the flanges being 1 foot 6 inches wide, and all of wrought iron. The Barlow rails of the piles weighed 80 lbs. per yard each; they were riveted back to back, and were filled with a preparation of coal tar. The main girders were placed 16 feet 6 inches apart; the seats, which were continuous, rested upon the top flanges, and the pier at the parapets was nearly 19 feet wide. The floor was laid with close planking 3 inches thick, which ran longitudinally, and presented, with the camber of 3 inches in the middle, an appearance like a ship's deck. The sides or parapets were close boarded. Below low water mark the Barlow rails were discontinued, and the piles consisted of solid stems of wrought iron 5 inches in diameter, screwed to depths varying from 7 feet to 17 feet, with cast-iron screws 2 feet in diameter.

The pier head was 50 feet long by 40 feet wide. From the ground line to the deck it was 68 feet high. There were five lower stages or landing-decks, 10 feet apart, connected by wide staircases. The head was composed of piles of Barlow rails weighing 70 lbs. per yard each, riveted back to back: they were connected together with rolled joists, and were strongly braced by diagonal ties. The length of the longest pile was 76 feet, and the pier was accessible at low water of spring tides. One span was tested with a central load of 42 tons, when the deflection was 1½ inch in the centre.

The weight of wrought iron employed was less than 370 tons, and of cast iron 7 tons. The cost of the works was under £10,000. The contractors for the pier were Hamiltons' Windsor Bridge Ironworks Company, of Liverpool, and for the approaches Mr. A. Oliver; the works being designed and carried out by Messrs. R. J. Ward, M. Inst. C.E., and the author.

The second paper read was a "Description of Viaducts across the Estuaries on the line

of the Cambrian Railway," by Mr. Henry Conybeare.

The coast line which this section of the Cambrian Railway followed for nearly 86 miles was indented by numerous estuaries, which were crossed by viaducts having an aggregate waterway of upwards of 5,000 feet; most of these estuaries were very shallow, and the line traversed them on timber staging; in all cases, however, the viaducts across the low-water channels were permanent constructions, with wrought-iron superstructures resting on cast-iron piers.

The viaduct over the tidal water of the Dovey had an opening span of 35 feet, on the principle first used by Mr. Brunlees, M. Inst. C.E., in the viaducts in Morecambe Bay. The channel was not more than 3 feet deep at low-water of spring tides, and as it was important to complete the bridge as rapidly and as cheaply as possible, the author employed ordinary piled foundations, fixing a cast-iron splice at the top of each timber pile, and driving it with it, so that the whole length of the timber should be sunk in the bed of the channel. So placed, timber piles would last as long as cast-iron; they afforded a much cheaper foundation, and one more rapidly executed than screw piling. A similar expedient was adopted in constructing the feeders for the opening span of the Barmouth viaduct.

The construction of the viaduct over the estuary of the Mawddach, at Barmouth, presented some difficulties, owing to the peculiar character of the foundation, and to the extraordinary velocity of the current at certain times of the tide. This viaduct had a waterway of 2,600 feet. The estuary extended about 10 miles inland, and at the point where the railway crossed it, was constricted to less than one-half its normal width, by the projection from Cader Idris of a craggy promontory, called Ffigle Fawr. The deeper water (54 feet at ordinary spring tides) was close to the northern shore, and the northern bank, which was of basalt, shelved down almost precipitously into deep water; beyond this the bed of the channel was of sand, constantly shifting and varying in depth from 2 feet to 8 feet. Below the sand was a bed of compact gravel from 6 feet to 8 feet deep; and below this again a peat bog, to a depth not passed through in the preliminary borings.

The piers next the northern bank were placed on shelving rock and were necessarily cast-iron cylinders. But the unknown depth of the peat under the other portions of the channel rendered the employment of cylinders inapplicable for the remaining piers, and screw piles were consequently used. The bed of gravel over the peat was all that could be depended upon to carry the bridge, and as this was too thin to be loaded heavily, the spans were reduced to 40 feet; and in order to equalise the load on the piles, and to distribute it over a larger area, the six piles of each pier were arranged in two equilateral triangular groups of three each, the upper lengths of each group forming a tripod. The diameter of the screw discs was 3 feet, and the load about 2½ tons on each square foot of their surface, which was about one-half their sustaining power; after the surface of the channel had been covered with stones, this bearing area was supplemented by discs of 4 feet and 4 feet 6 inches in diameter, which were bolted on to the piles and rested on the stone work. To avoid weakening the crust of gravel on which the stability of the bridge depended, the screw discs of the piles were placed 8 feet up the piles. The inconvenience inseparable from this mode of construction, when applied in such an exposed situation was attributed to the fact that the piles of which each pier was composed—though sufficiently strong collectively when the pier was complete, and all its constituent parts firmly braced together, to withstand any stress of weather—had little individual strength when standing singly, or remaining unbraced, while the pier was in process of erection. The works, therefore, were somewhat delayed by piles being broken, and the staging for fixing them was swept away during heavy gales while

the piers were in progress; but there was no instance of the slightest accident occurring to a pier after the bracing was once completed. Considerable difficulty was experienced in sinking the cylindrical piers owing to the velocity of the current, and the works had on one occasion to be suspended for some months.

The opening span was 47 feet between the points of support, which was contracted to 36 feet by the fenders. The description of drawbridge to be employed in closing this opening was determined by the specialities of the foundation of the pier from which it was projected, which were on hard rock, shelving abruptly in a direction transverse to the axis of the bridge. Hence a swing bridge was out of the question, and there only remained the telescope or sliding drawbridge. Of these there were two varieties, the under drawbridge and the over drawbridge. The former was devised and first employed by Mr. Brunlees, and was that adopted by the author for the opening span of the Dovey viaduct. The over drawbridge was less generally known, but one had been erected some years previously at Rhyl, and had worked satisfactorily. Irrespective of its general mechanical advantages, of working more easily, and of being lowered into position, instead of being lifted up into it and supported in it, the over drawbridge was much better adapted to the requirements of the Barmouth site, in respect to foundation, than the under drawbridge, for the latter required at least a second row of piles for the support of its sliding drawbridge, and as this had to be withdrawn between and within the supports of the contiguous bay, its width was either restricted, which in this case would have interfered with the footway alongside the railway bridge, or the intervals of the piles it slid between were unduly increased.

ARCHÆOLOGY AND ARTS IN ROME.*

THE British Archæological Society of Rome is one of the most important of the many agencies that are now at work in making *scavi* or excavations in the Eternal City. Signor Rosa, the *regio soprintendente*, who has the whole affair under his control, is said to be particularly pleased with the conduct of the British antiquaries; but he has called their attention to the rules and regulations published three weeks ago,—under date January 22, 1871,—in which are explained *in extenso* all the duties and obligations of intending excavators, and the restrictions and penalties to which they are liable: thus, all persons making *scavi* in Rome and the Roman provinces must be provided with a licence; all licences granted before the 1st of January, 1871, must be renewed; all discoveries must be reported to the superintendent within 24 hours; and nothing can be moved or carried away without permission from the authorities. These rules are fair enough; and the antiquaries, after suspending their labours for a few days in consequence of the damage done by the floods of Christmas week, are again hard at work.

The present lecture-season of the Society opened on December 30. The subjects of the lectures for the current month of February were as follows: Feb. 3, 'The Tombs of the Cæsars,' a lecture by A. D. Cosson, read by the Rev. R. J. Nevins; Feb. 10, 'The Cave of Mithras,' by C. L. Visconti, translated and read by the Rev. A. Shadwell; and, Feb. 17, 'The Buildings of Trajan in Rome, his Forum and his Private House,' by R. A. Lanciani, read by the Rev. J. Bruce.

Among the more recent publications in the library of the Society may be mentioned, the 'Ancient Streets of Rome' and the 'Lupercal of Augustus,' by Dr. Gori and Mr. J. H. Parker, writing in unison; and 'Excavations in Rome in 1868-69-70,' by Mr. Parker *solus*—three pamphlets printed for the Roman Exploration Fund. The last pamphlet was presented to the subscribers at the *séance* of Friday evening (February 17), and another

* From the *Athenæum*.

pamphlet will be distributed next Friday. The account of the excavations of the last half of 1870, which is especially interesting, is written in the clear, compact style for which Mr. Parker is famed, and refers to the excavations made at the close of last year by the monks of S. Gregorio in the courtyard of their monastery on the Cœlian Hill, and the equally recent discovery of an ancient wall, "built in the style of the Wall of the Kings, and resembling the one on the Aventine called the Wall of the Latins." It enumerates the most important discoveries made in other parts of the city up to the end of December: to wit, the remains of a paved street of the first century, with ruins of houses on both sides of it near the Villa Strozzi; pillars made of travertine, found near the Palazzo Grazioli, and supposed to have belonged to the *Septa*; vaults belonging to an ancient drain under the Basilica of Constantine, together with the bust of a man and the statuette of a woman; a *cippus*, or boundary-stone, found at the Marmorata, on the banks of the Tiber; and a vaulted subterranean passage brought to light near the church of S. Prudentiana, and said to have belonged to the house of Pudens, the friend of St. Paul,—a photograph of which passage was obtained by Mr. Parker, and presented by him to the Archæological Society, with a number of other photographs of Roman antiquities. Mr. Parker says, in reference to this discovery, that the walls of the chamber (built in the first and altered in the second century) are found to "agree exactly with ecclesiastical history, which informs us that Pius the First made a church in the *Thermæ of Novatus*." Mr. Parker's pamphlet speaks of the excavations carried on by Father Mullooly at S. Clemente, resulting in the discovery of the Cave of Mithras, and showing that this pagan shrine dates from the days of Hadrian, and must have been built in the inner fosse of Servius Tullius, the Church of S. Clemente being built in the outer fosse.

But the discoveries of 1870 are thrown into the shade by those of the present year: three in number,—or four, if we count the excavations at the Vigna Nussmer,—in order thus: a sepulchral urn, found at S. Apostoli; the cell of San Giovanni di Matha (on the arch of Dollabella and Silano), opened and verified; an ancient tomb discovered at Porta Salaria; and the ruins of the Vigna Nussmer, at the foot of the Palatine, worked in 1858 and subsequent years, and re-opened two weeks ago (Feb. 11th). The discovery at S. Apostoli was, as many such discoveries are, accidental, and was made during the restorations of the basilica. The urn is stated by some authorities to be that of one of the early Popes; and by others to belong to Cardinal della Rovere, nephew of Pope Sixto the Fourth, which only takes us back to the year 1484. After the flourish we have had from the local antiquaries, this *dénouement* of the story (which is, no doubt, the true one) is rather disappointing; but the matter is still pending. Of the cell of San Giovanni di Matha much more may be said. The saint lived in two cells, forming part of an ancient tower on the arch of Dollabella and Silano. One of these cells is the one just referred to. The arch on which it rests is made of travertine, and dates from the year 50 B.C.

I have now to speak of the discovery at Porta Salaria, made accidentally by the workmen who are engaged in demolishing the walls. It consists of an ancient tomb, four metres in length, made of travertine, square, or nearly so, with basement and pilasters. The inscription, which appears to have been very extensive, is almost totally effaced; but there is (or is supposed to be) some clue to its antiquity. Competent authorities say that it dates from the days of the Republic, but what the year or even the century of its construction is a mystery. The search for further particulars led to the discovery, close at hand, of another tomb, Italian and not Latin, but with inscriptions in Latin and Greek. On the tombstone is the figure, in relief, of a boy eleven years of age, by name Sulpicio, and belonging to the Massimi (?)

family. He is dressed in a toga, like a man, and is described in the inscriptions as a marvellous child, capable of disputing with lawyers, and writing and improvising Greek poetry equal to that of the Greeks themselves. The last argument on which he wrote appears to have been "What were the words used by Jupiter when he reproved the sun for giving his car to Phaethon?" Among the inscriptions are forty hexameter and heroic verses, all legible (or nearly so), and carved in minute characters. I have applied for permission—which has hitherto been withheld—to copy the inscriptions and examine the tomb scientifically. At present I will merely add, that it is considered highly probable that the inscriptions on the ancient tomb were destroyed by people employed in making the new one. Traces of other tombs are being discovered, but no trace of the aqueduct which, according to the statement of Procopius, stood in this place. Perhaps the fact that the gates of Rome were reconstructed at various times, and the walls and foundations utilized for other buildings, may account for this non-discovery. A word or two about the ruins in the Vigna Nussmer, opened on February the 5th, under the superintendence of Signor Rosa. The principal excavations were made here at the expense of the Emperor of Russia, in 1858, and one of the most curious relics—a large stone, with the image of a donkey on it, and the inscription "Hic est Deus Hadriani"—has been taken to the Vatican. But the ruins are still rich in relics of this kind. Thus we have a head coarsely cut on one of them, with the word "Gordicis" underneath it; the figure of a soldier and a horse and cart, with the legend, "Labori aspici quomodo laboravi et proderit tibi." Among the other inscriptions are "Lucius," "Faustus," and "Marinus," "epitynchanos, nikaensos, aphadkymetikos," and the words "Anus" and "Gamus," one over the other. This part of the Palatine district is a favorite resort of English antiquaries, and is near the Palace of the Cæsars, the excavations of which are attracting great attention.

Of Art news we have a good supply this month. The painters, sculptors, and architects of Rome, whose name is Legion, have formed themselves into a club, called the "Circolo Artistico Internazionale," and have opened an exhibition for their works in the Casino on Monte Pincio: tickets half a franc; Thursdays a franc. Owing to the *fêtes* of the Carnival, this praiseworthy exhibition has been rather neglected as yet both by Romans and by visitors; but Lent has set in, and the public, sated with gaiety, are beginning to make up for lost time. Among the members of the Circolo is Mr. Warrington Wood, whose statue of 'Eve' has obtained a great success in Rome, and Mr. Severn, the painter, who is resting on his laurels, and is personally known to Englishmen as the British Consul. The Circolo, though only a few weeks old, already counts upwards of 300 members, and it is understood that their exhibition will be permanent, but that the pictures will be changed from time to time. For some reason or other, no catalogue has been printed; but the artists' names are appended to the pictures. Signor Pietro Vaini, a young Roman painter of promise, has just finished a portrait of the Prince of Naples, which he has presented to the Princess Margherita. The child's face is drawn *a pastello*; and, though copied from a photograph, and not from the original, is an exact and pleasing likeness. But it is just possible that Signor Vaini may have obtained glimpses of the baby in the streets. He has been presented to the royal family, and can now obtain as many sittings as he likes. He has received orders from some of the Roman nobility. Another Italian artist, Signor Raphaele Fusi, has just finished a bust in marble of Victor Emmanuel, which, after being exhibited in Spillmann's shops, is to be taken to the Exhibition. The project for the monument to Victor Emmanuel, which was to have been erected in some prominent part of the city, seems to have fallen to the ground. As long ago as Christmas last, the Roman Municipality voted a sum of

100,000 francs towards the expenses, but nothing more has been said about it, and the contributions which were expected from the other cities of Italy have not arrived. The news which reaches me from the North of Italy and from Sicily is as follows:—"The monument to be erected in Ferrara in memory of Savonarola is to be entrusted to the sculptor Stefano Galletti da Cento. His model, exhibited, with nine others, in the Academy of Fine Arts in Turin, has been thus eulogized: "This figure of Savonarola gives a complete idea of the illustrious Italian. It is at once severe, noble, and full of life. We see in it the soul as well as the body of the great martyr." A statue of Bodoni, the typographer, is shortly to be erected in Milan. The artist is not chosen, but it is understood that the work will shortly be competed for. The statue is to be larger than life, and made of Carrara marble, second quality—the kind known as *Ravaccione*. The Sicilian news refers to a new work by Gregorio Zappala, a sculptor of Messina, well known in Italy for his monument of Giuseppe La Farina. The work in question is the model of a statue of Bellini, to be erected in his native town of Catania. The pedestal of the monument is circular, with three steps, the base thereof being built in the shape of a Greek Cross, and ornamented on the right by a statue of Melody, and on the left by a statue of Fame. In front is a third statue, holding a pen and a repertory of Bellini's compositions; and behind is a fourth allegorical statue, with a heart in its right hand, out of which are emitted seven rays of light, indicating in golden letters the *chefs-d'œuvre* of Vincenzo Bellini. On the top of the monument is a magnificent statue of the composer, wrapt in thought, and full of grace and majesty.

AN OVERCROWDED MILLINER'S WORKSHOP.

It is gratifying to find that the section of the Municipal Council known as the "Public Health Committee" is performing the duties undertaken by it. The following sanitary case was heard at the Southern Divisional Police Court on Monday last:—

Mr. and Mrs. Stamp, of 46 Grafton-street, appeared in answer to a summons for overcrowding their workshop, by having nineteen persons employed therein at one time, there being only sufficient space for eleven persons. The case was brought under the Sanitary Act of 1866, which was an extension of the Nuisance Act. The workers employed by Mr. Stamp were young girls, who worked at millinery sewing from nine in the morning till seven in the evening.

Mr. Boyle, C.E., deposed that the room contained but 3,330 cubic feet, and that the space allowed by law to each worker was fixed at a minimum of 300 cubic feet, the apartment in question being thus only sufficient to accommodate eleven persons constantly employed therein.

A police-officer proved having served proper notice of the dimensions of the apartment, and of the provisions of the law, on Mr. Stamp on the 8th of June, 1869.

Another officer stated that he found nineteen persons working there on the 16th inst.

Dr. Mapother, Medical Officer of Health, proved that such crowding was calculated to injure health materially, especially in predisposing to consumption in young females, by breathing a continuously vitiated atmosphere. The space allowed to such persons in Glasgow was 500 feet; in barracks a space of 600 feet was given, and in hospitals 1,000 feet. The space in the present instance was actually but 175 feet for each, which was totally insufficient.

An order was made to have the nuisance abated within 24 hours, or incur a penalty of 10s. for each day it remained unabated, and costs to the extent of £3 were also granted. A second summons was brought for not having sufficient accommodation in other respects, and an order was made to have the proper remedies applied within 21 days.

PROPOSED RESTORATION OF CHRIST CHURCH CATHEDRAL.

FOLLOWING in the wake of the late Sir Benjamin Lee Guinness in his munificent expenditure on the restoration of St. Patrick's Cathedral, another of our merchant princes, Henry Roe, Esq., has announced his intention of defraying the cost of restoring the venerable fabric of Christ Church Cathedral. In our last two issues we gave plans and details illustrating Mr. Wm. Butler's valuable paper recently read before the Royal Institute of the Architects of Ireland. We hope to have more to say on the subject hereafter.

LIMES AND CEMENTS.

(Concluded from page 73.)

LIFUT.-COL. SCOTT, R.E., gave the fourth and concluding lecture of this series, at the rooms of the Architectural Association. Having recapitulated the subjects of the three previous lectures, Col. Scott began by pointing out in what way the suitability or otherwise of limestones for making limes and cements for various purposes, could be tested, so that if any member present had to carry out a work in a foreign country in which there were no manufacturers of lime he would be able to select materials fit for his purpose, assuming that such an one had a sufficient knowledge of mineralogy to be able to distinguish a limestone from any other stone. If the application of acid to a limestone entirely dissolved it and left no residue, the material, when burnt, would only give a pure lime, most unfitted for building purposes; if, on the other hand, it left a residuum of very fine clay, quite impalpable to the touch, it was probably capable of being manufactured into a more or less hydraulic lime. Muriatic acid or nitric acid might be used, but muriatic acid was preferable on the score of doing less damage to one's clothes than nitric acid. Sulphuric acid might also be used, but this test was more difficult of application and gave less satisfactory results. Muriatic acid was, all things considered, the best for this purpose. When the stone was burnt, and it was desired to know what results a mortar made from it would give, a good plan was to take a small quantity of it in a pounded state, and to add muriatic acid to it. The acid dissolved out all the iron, alumina, and lime it contained, but left the siliceous a somewhat gelatinous mass. By means of filtration the siliceous may be separated from the other matters which are in solution. In the clear-filtered solution there might be present chloride of iron, chloride of aluminium, chloride of calcium, a little chloride of magnesium, chlorides of the alkalies, and perhaps a little manganese. As soon as the liquid has passed away from the gelatinous siliceous which remains on the filter, the residuum, after being well washed with a washing-bottle, may be dried, calcined in a platinum crucible, weighed, and estimated. The next step is to obtain a substance which will lay hold of the chlorides of iron and alumina in solution. The addition of ammonia effects this by the neutralisation of the acid, and a somewhat dense precipitate is thrown down. By means of another filtering operation, the iron and alumina can be separated, and another clear solution will be obtained, consisting of chloride of calcium, and, perhaps, chloride of magnesium. If magnesia is present in a limestone it will give a better hydraulic lime than that obtained from pure limestones. The American hydraulic limes contain a large quantity of magnesia, but the lecturer was not aware that any of the hydraulic limes of this country contained that substance in any great degree. By treating the clear fluid obtained from the second filtration with oxalate of ammonia, the lime it contained was thrown down as a white precipitate, which might in turn be separated by a third filtering operation and estimated as before. In making an analysis

of an hydraulic limestone, the best method is to separate first the clay from it, and then the iron and alumina. Indeed, this is really all that is practically necessary. Supposing that the siliceous, iron, and alumina were large in quantity, such a limestone, though unfitted for use by itself, could be used very well as a puzzolana, which, if very intimately mixed with a pure lime, will impart hydraulic properties to it. The puzzolanas imported from Italy some years back for this purpose, and the trass or terras from Holland, were rich in siliceous, iron, alumina, and magnesia; but we in this country might have done equally well, or better, if we had made use of many of the beds of stone, shales, &c., of this country, which, if treated properly, would have given better puzzolanas than those imported at great expense from abroad. The lecturer next spoke of the lax way in which limes and mortars were specified by architects and others. He said that a perusal of the specifications which had been published of some of the great works of this country would show that some particular lime had been specified, as, for instance, "Halling or Mersham lime," as if both these varieties were identical; "lias lime," too, was frequently specified, without naming the locality from which it should come. He observed that there were so many gradations of quality of each denomination or variety of lime, that he thought it would be best for architects (if they could only be persuaded to do so) to specify the percentage of silica they required in a lime rather than the particular district from which the lime was to be procured; the builder could then select the quarry accordingly. Colonel Scott said that he tried many years ago to induce the War Office to adopt this plan of specifying lime, and was so far successful that in one or two works the principle was acted upon; but he believed that it had now fallen into disuse. Speaking of the action of the atmosphere on limes, the lecturer said that the injurious effect of the exposure of limes to the air was very much over-rated. Such exposure turned it into a hydrate of lime, but it had in reality undergone very little change, except that it would not heat quite so rapidly when slaked, and therefore its power of throwing abroad hard particles was lessened. He remarked that the atmosphere was only doing gradually that which would eventually be done when the lime was slaked previous to its use for mortar. After a time the water absorbed by the lime, however, began to be expelled by the carbonic acid gas of the atmosphere, though this was a slow process, owing to the small amount of carbonic acid present in the air. In buying lime in bags it behoved the purchaser to be quite certain that the lime had not been exposed for a long time to the atmosphere, for if it had he would of course get less for his money, owing to its expansion in bulk by the action of the moisture of the air, which was not so easy of detection in the bag as in the lump. If pure chalk lime was exposed to the air for fourteen days, and the air allowed to attack it freely, Pasley found that while it increased 8 per cent. in weight it increased 44 per cent. in volume; after forty-two days exposure it increased 15 per cent. in weight, and 101 per cent. in volume. If it is wished to ascertain the quantity of moisture present in any specimen of lime, it is done readily and simply by taking a glass tube, putting a little lime into the bottom, and exposing it to a red heat, when the water would easily be driven off into a tube containing pieces of chloride of calcium, which would absorb the water. By weighing this latter tube before and after the operation the quantity of water is readily determined. But a more practical, if not so exact a method, was to add a little acid to the lime, and to observe whether the effervescence was very violent or not after stirring it round. Weight, the lecturer observed, is not much of a test for limes, though it was much used as a test for Portland cement; but weight was not really a test for all cements—it was not a reliable test for Roman, Medina, Atkinson's, or any of the quick-setting cements. However, there was a good test for these very easy of

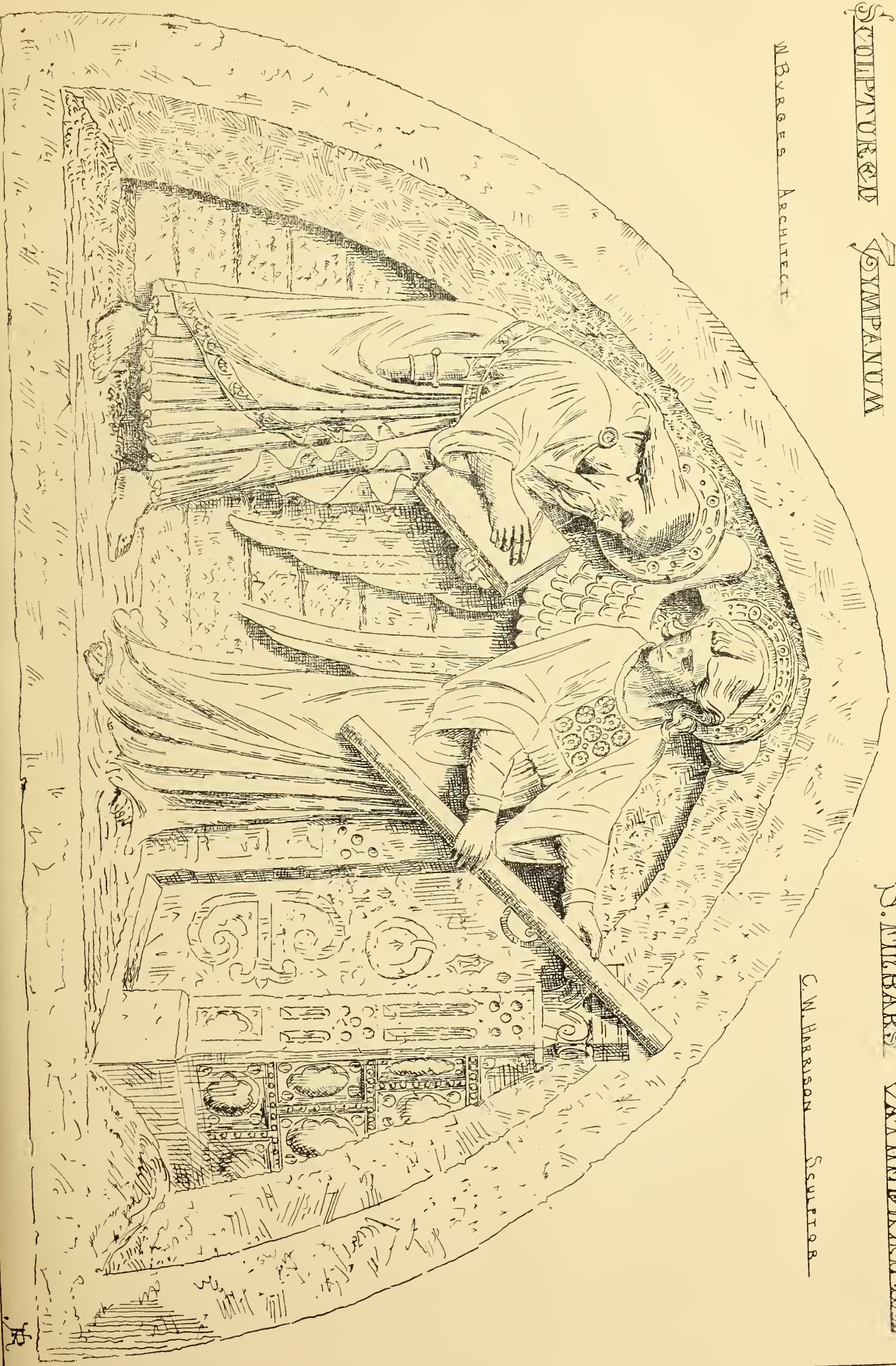
application, viz., merely mixing a little of the cement with water, and observing whether or not it set both quickly and hardily. But such cements should not be condemned too hastily, as the burning of them, particularly in the case of Roman cement, required to be done to a very great nicety; and it might happen, without any great amount of carelessness on the part of the manufacturer, that the material might answer fairly well in practice, though apparently sluggish in taking its set. It was constantly said now that Roman cement has very much deteriorated in quality of late years, and it was commonly supposed to be very much adulterated. Now Colonel Scott said that he had examined two or three hundred specimens of Roman cement, and had never found one which might be said to be adulterated. Very frequently it got exposed to the action of the atmosphere, and so got injured in that way. He thought that Roman cement is now just as good as ever it was, but people, from the use of Portland cement, expected too great results from Roman cement. The lecturer then proceeded to describe the manufacture of Portland cement, after which he touched upon some of the points to be borne in mind by the purchaser of that article. He said that because it contracted in bulk the more it was burnt, if it was bought under-burnt the buyer was of course getting less for his money than he would were it burnt to the requisite degree. Engineers knew this very well, and therefore always bought their cement by weight. It was against the manufacturer's interest to burn it to too hard and flinty a state, for in that condition it caused great wear and tear of his grinding machinery. Again, if the burning was not carried very far he saved in fuel. There were, therefore, three reasons why, unless cement was bought by weight, the liability was incurred of obtaining an inferior article. Referring to the test of strength for Portland cement, the lecturer said that the manufacturer might arrive at strength in one or two ways. In proportion as it was reduced to a fine state of division by grinding a better result was obtained. Many manufacturers after the material is ground do not "bag" it at once, but place it in bins for a time, and the bags are subsequently filled from the contents of these bins after they have been thoroughly admixed. By this means the under-burnt lime particles become air-slaked, and the injury they might do to the material is avoided. Portland cement, in fact, is improved rather than otherwise by keeping and exposure to the air. Perfect manipulation and admixture of the constituents will give greater strength. There was another, but a very dangerous way, in which strength could be arrived at, and that consisted in reducing the quantity of clay. The effect of this might be got over in some measure by exposure to the atmosphere; but where the quantity of clay was very small the Portland cement would always be a very treacherous material. The lecturer said he had known specimens of Portland cement which contained no more than 18 per cent. of siliceous to set very well at first, and to last well for some time, but which eventually played great pranks, and occasioned many serious accidents. He thought that instead of looking for such a very high test of strength for Portland cement he would rather take a cement of less apparent strength but containing more silica. The lecturer next proceeded to speak of the mixing of limes and cements for use, and the proportions of sand best adapted for different varieties of limes, as dwelt on at great length in the previous lecture. In conclusion, Colonel Scott insisted upon the necessity, if good work was desired, of using wet bricks and stiff mortar, and strongly condemned the practice of "grouting." He said a French architect, M. Vicat, gives the English credit for their bad mortar for the following reason: That our builders for the most part have in view only the extent of a 99 years' lease, and so proportion their various materials that the whole structure shall fail together at the expiration of the 99th year.

SCULPTURED
TYPANUM

M. BURGESS ARCHITECT

S. MITCHELL
CARVED TYPANUM

C. M. HARRISON SCULPTOR



THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

SCULPTURE AT ST. FINBAR'S CATHEDRAL, CORK.

THE sculptured panel over the north transept door represents St. John and the Angel measuring the Temple. The subject is taken from Rev. xi. It is carved in the native stone. The design, by Mr. Burges, London, has been faithfully carried out by Mr. C. W. Harrison, Great Brunswick-street, Dublin. It has been presented by the contractors, Messrs. Cockburn, Great Brunswick-street, Dublin.

READY-MADE HOUSES.

ALL who occupy "ready-made" houses must put up with all the oversights on the part of the architect, and even in first-class houses these are not a few; but when a lover of comfort erects a mansion for himself, be it either in town or country, it is quite a different matter. In such a case it is surely worth while to exert all possible diligence of foresight, forethought, and study; if, however, we may judge from the plans shown of them, more than one recently-erected mansion might have been laid out, and the rooms planned just as well by a country bricklayer, and then left to be gaudily finished by a town decorator. The adage that fine feathers make fine birds does not hold good in architecture. Good colouring will not redeem faulty composition and bad drawing. In interior architecture there ought to be effects and beauties which the very best of decorators cannot possibly blot out, although he may do his very best to mar them.

Whenever there is an opportunity of doing so, it might be supposed that a man would take pains to secure for his dwelling that kind of beauty which results from artistic architectural design, were it only because that by so doing he can eclipse those who have nothing better to show than commonplace sumptuously fitted up and furnished much perhaps in a style that soon satiates and wears the eye. As regards expense, refined taste and carefully studied design is sound economy, for a room which is strikingly attractive in its architectural ensemble requires very little to set it off; in fact such a room may fairly rank as a work of art, consequently is removed out of the jurisdiction of fashion,

"That fickle jade
Whose whims work well for nothing except trade."

That there are very few rooms which answer to such character is only too true, and for that very reason architects should now, as far as it is in their power, endeavour to break away from the present routine system as regards planning, and all that belongs to internal design; instead of which they seem to shun every opportunity of producing genuine, undiluted artistic spirit. Give them an entrance hall as big as a barn, and, no doubt, they can make something of that out of the mere ready cut and dry stuff, to be culled from books. The *pompous* is to be had any day, by merely asking for it first and paying for it afterwards. With the *piquant* it is altogether different; it is impossible to measure the beautiful by a foot rule, or to compute its value by the stone weight. The artistically beautiful may be produced without any extravagant expenditure either as to material or space.

The Picture Cabinet in the Soane Museum proves most convincingly how much may be made of a small room by means of ingenious contrivance and planning; the latter must not be looked upon as merely horizontal or floor plans, but also by vertical plan or section. One of the most charming rooms in all London, if not actually the most charming of all, is the library of a gentleman distinguished by his large contributions to art literature; the room alluded to is an architectural study in every respect. Captivating, when first seen, it wins upon one; on further acquaintance

with it, it becomes fascinating. Most certainly there is not either in Windsor Castle or Buckingham Palace, nor in any of our most palatial club houses, a single room that can compete with it for finished elegance. Not only must that room have cost a deal of money, but a large amount of artistic study must have been expended on it. Money is indeed all potent, but there are some things it cannot purchase, and one of them is refined taste.—*Building Times*.

SANITARY CONDITION OF DROGHEDA.

It would appear from the recent report of the Poor Law Inspector, that sanitary matters in the ancient borough of Drogheda have been latterly totally neglected. The bad state of health of the engineer may be a subject for commiseration, but it should be considered that the lives of some fifteen thousand inhabitants are placed in jeopardy in the meantime. The inspector has not, we think, exceeded his duty in laying the facts before the Commissioners, by whom they have been communicated to the Corporation. We make a few quotations from his report:—

I have the honour to report that, in pursuance of your instructions, I visited the town in Drogheda, and endeavoured, by every means of observation and inquiry open to me, to ascertain the precise state of the facts bearing on the now very important question of its sanitary condition and defects.

As described by me in a former report, the town of Drogheda comprises two dispensary districts, viz.—St. Mary's, situated on the southern or County Meath side of the Boyne, and St. Peter's, on the northern or County Louth side.

I find that on Thursday last, Dr. Kealy, the medical officer of St. Peter's district, East Ward, reported to the Dispensary in the following terms, viz:—"I beg to direct the attention of the committee to the deficient sanitary arrangements of the district, in particular to Hardman's Garden, Carroll's-lane, and Hand-street."

There are two cases of typhoid fever under treatment—one in Hand-street, and the other in Hardman's Garden. These two cases have been caused by stagnant water being allowed to remain outside the back doors. There are two case of variola under treatment.

In addition to making this written report to the Dispensary Committee, Dr. Kealy informed me that he also, in the course of last week, communicated verbally to the same effect with some of the Corporation authorities, and that though he was subsequently told by the Nuisance Inspector that all had been made right, he, notwithstanding this assurance, found, on again visiting the localities on Saturday evening, that things then remained in precisely the same state as before, except in Carroll's-lane.

I accompanied Dr. Kealy to the houses in which the two cases of typhoid fever are under treatment, and found that some attempt had been just made by the occupiers at improvement, but in neither instance had the evil been abated sufficiently, and in one case, I think, it was rather aggravated than diminished by what had been done. While visiting this locality (Hardman's Garden), some of the residents came forward to make a strong representation to me, as to the miserable condition they were in as regards their water supply, for which, it is stated, they are altogether dependent on two sources distant about a mile from them. I observed at one end of this lane an open well, and it occurred to me at first that if this were properly enclosed and protected from defilement it would meet the case sufficiently; but I was subsequently informed that the water yielded by this well is not good for drinking purposes, and is sometimes unfit for use.

In St. Peter's district, West Ward, between the 31st December and the present time, 29 cases of small-pox have occurred, of which as many as six have arisen within the past week, the most recent being one first brought to notice yesterday in Chester's-lane, while the medical officer and I were engaged in our inspection of that locality. Since I first visited this lane on the 2nd inst., several improvements have unquestionably been effected, through the action of the Corporation, viz., lime appears to have been liberally distributed for use and applied by the occupiers in whitewashing their houses both internally and outside, and the defects complained of in the state of the roadway and water tables have been also attended to in the interval; but the principal evil complained of here is the existence, in the very centre of the lane, of a yard for the collection and subsequent

sale of all the refuse and manure he is able to procure from the various yards and offices in the town. I was informed that the officer of the Corporation has given notice to the owner of this yard that the nuisance should be discontinued and abated, but so far as could be ascertained (the yard being locked up at the time of my visit), all that has been as yet done in furtherance of this is that no fresh deliveries have been made there for the last week; however, as counterbalancing this, I understood that loads of manure continue to be received in a garden immediately adjoining the yard, and where its presence is probably almost equally open to objection. How urgently the complete and permanent banishment of this depot from its present position, in the centre of an inhabited lane, is called for may be judged from the fact that between the 23rd September last and the present time—that is, within the space of only five months,—nine cases of typhus fever and three of small-pox are recorded by the medical officer as having occurred within twenty square yards of it.

I requested the medical officer, Dr. Kelly, to point out to me any other localities besides Chester's-lane to the sanitary condition of which he saw reason to object, when he named the North-road, George's-street, which is a continuation of North-road, and Windmill-lane, which adjoins it, all being in the immediate vicinity of Chester's-lane, and each of which I then proceeded to inspect in company with Dr. Kelly.

The medical officer's ground of complaint, as regards this quarter of his district, is that there is no main drain, and that the sewers from the houses discharge into the water-tables—the latter, too, being considerably out of repair, and containing in several places accumulations of foul stagnant water, which, being collected within a few yards of the doors of the houses, cannot fail to have an injurious influence on the health of the inhabitants.

I inspected, with the medical officer, the back premises connected with some of the houses in this locality, and, as a rule, found them in a most filthy and objectionable condition.

From the lower end of the North-road here referred to there is, I may observe, a main sewer, and Dr. Kelly informs me that he three years since represented to the Corporation authorities the necessity that existed for extending this in the direction just pointed to, but he was told there were no funds available for the purpose.

I have learnt with satisfaction from the united testimony of the medical officers that the Mayor of Drogheda is most sincerely solicitous for the health of the town. I may be permitted to state here what appears to me to be the want at present most experienced, namely, that of an active and thoroughly competent executive authority to give shape and effect to their orders and instructions. That no such agency has hitherto existed, must, I think, be obvious from some of the facts detailed in the course of this report, and this conclusion has been further confirmed by the best local inquiries it has been in my power to make on the subject.

The functions of "nuisance inspector" for Drogheda appear to be at present confined to an officer of the Corporation whose primary duty consists, as I learn, in looking to the state of the market yards, and in the repair of the pumps, &c., for which he is paid, I understand, a yearly salary of £50 (1) and who, as a secondary duty, is also entrusted with the supervision of the sanitary affairs of the town, for which he receives an additional salary of £10 (1). Of this officer I have no personal knowledge whatever, but whether it has resulted from his time being too much engrossed by his other engagements, or from a want of aptitude on his part for functions of this important kind, it seems quite clear that he is a sanitary officer in little else than in name.

I apprehend that a town such as Drogheda will be at all times found to absorb, if not all, a very large share of the attention of an active and intelligent officer in looking after its sanitary arrangements and requirements, and if this proposition hold good in ordinary years, with how much greater force does it apply at this moment, when a formidable epidemic disease is not merely threatening the local community with its ravages, but has already established itself in their midst for a period of nearly two months.

In addition to the employment of a vigorous and intelligent officer, for the present, at all events, devoting himself exclusively to the discovery and abatement of all offences against sanitary law, there will still remain the questions of the sewerage and water supply, to which I have adverted, and which appear to me to be well worthy of the best and earliest consideration of the Corporation.

W. P. O'BRIEN, Poor Law Inspector.

The Corporation have issued an advertisement to applicants for the very important office of Borough Engineer. If anything like a fair salary is offered we have no doubt many will seek for the position.

LECTURES ON ARCHITECTURE.*

(Continued from page 81.)

It is now time to pass to the consideration of what architecture really is, and what is its domain in the realm of art. It has already been seen that for historical purposes no art can be its superior, but this is only its archaeological aspect. To claim its right position, it must have aims and aspirations higher than those of imitating the glories of the past. Architecture must elevate into an art the science of building. It must add a charm to the expressions of the exigencies of life; it must make the structure of the mere builder "a thing of beauty, and a joy for ever." It must not disdain the present time, and turn to other ages for its delights. It must not allow itself to lag behind the progress of science, and be considered impracticable in an age of exigent scepticism. The majestic buildings which our art has produced, are connected with man's highest thoughts, and his noblest aspirations. Veneration for the dead, the consolations of religion, the stirring activities of public life, are all more or less associated with architecture. Surely an art with such advantages, ought to be true to herself, and advance with no uncertain steps. What principles, therefore, are to be considered the chief guides of architecture?

When the savage conceived wants beyond those of a mere hut of shelter, or a tent on the desert, he began to build a more solid structure. He desired *permanency*, and a gradual advance from wood to stone was the result. The individual becoming merged in the community, more extended social wants were the result. A king or governor of some kind, became the visible centre of authority. Common action for common objects and against common foes, begat a feeling of interdependence which ripened into the patriotic sentiments of a nation. At this time architecture was needed. New wants required new modes of satisfaction, but the old cravings were the same. In their new buildings, kings, priests, and people desired above all things *permanence*, and no art which failed in this essential could satisfy the longings of their soul. A monarch of boundless power, with crowds of submissive slaves for subjects, with no law but his own pleasure, must still have felt the instability of human life, the bitter drop in his cup. "Thus far shalt thou go, and no further," was a law against which he instinctively rebelled. To this feeling we owe the Pyramids and other Egyptian works. The Pyramids are the most stupendous monument of the power and impotence of man;—power, which piled up that amazing heap of stones in the wilderness; impotence, to do more than utter an unavailing protest against the decrees of Heaven. The Pyramids have, of course, no claim to artistic beauty. Their imposing effect on the mind is solely due to that feeling of comparative *permanence* which was the dominating idea of their builders. The power of the one over the many, the tyranny and misery which must have accompanied their erection, are among the histories illustrated by their wonders of the world. Passing from the Pyramids to other monuments of Egyptian art, it will be found that the quality already referred to was never forgotten. The hypostyle Hall of Karnak is justly considered one of the most beautiful, as well as the most interesting, of architectural remains. By the time this was erected, the senses of its builders had become sufficiently educated to require beauty. The Pyramids had nothing of this quality, though they had in a high degree that of *permanency*. At Karnak, *permanency* and beauty are displayed in a happy combination, though, as in all similar buildings, the former takes the lead. The columns are so thickly planted, that a glance shows them to be more than sufficient for any structural needs, and the eye loses itself in the mysterious recesses of these mighty colonnades. The central columns being larger than those beyond, appear even larger than they really are, from

this artistic contrast; and though beauty is far from absent, the main effect produced on the spectator is that of solidity, and size,—in other words, *permanency*. As religion played its great part in the affairs of men, it was natural that the chief structures of the day should be devoted to sacred purposes. Here, again, the same object was sought. To prove to man his own insignificance, to illustrate the power and endurance of a Supreme Being or Beings, no symbol was so effective as a gorgeous temple built in defiance of Time, to last for ages. Here again beauty was not necessarily absent. On the contrary, it was often displayed in a high degree; but the all-important desideratum was as before that of a significant *permanency*. The Jews, on their return from their Assyrian captivity, and always more or less under the influence of their old land of bondage, may probably have been impressed with these ideas, when they undertook the rebuilding of their much-loved temple. When the Apostles desired to excite our Lord's feelings of wonder and admiration they called his attention not to the beauty of the building, but to the size and quality of the stones of which it was constructed. In so doing they doubtless referred with exultation to its strength and solidity, and rejoiced in its apparent *permanence*. The *quasi* rebuke of their Divine Master in the prophecy that not one stone should be left on another, is a commentary sad and instructive on that never-to-be-satisfied craving for *permanency*, which is proved by their original remarks. Perhaps the most significant proof that this was the ruling principle of Egyptian architecture is found in their rejection of the arch. There is little doubt that this was not the result of ignorance. In the tombs of Beni-Hassan and elsewhere arches are found, although they are not built as arches, but are cut out of the solid stone. The Eastern distrust of the arch is expressed in the well-known saying, "An arch never sleeps;" and it must have been from this conviction, that the Egyptians deliberately set it aside as a principle of construction, and adopted the solid trabeated style which characterises their work. The result has, in some measure, justified them; for, while the temples of Egypt have suffered from violence only, and seem still destined to last for thousands of years, it would be difficult to find a single arched building without some signs of constructive defects. In the works of the Greek architects, the same principle which is under consideration was a leading rule of conduct. The abundant supports of the Parthenon, the rock-cut base and the level lines of the cornices, are all suggestive of repose and *permanency*, and the low pitch of the Greek pediment, and its ornamentation with sculpture, forbade the idea of thrust. The Romans, in borrowing from Greek art, were not satisfied with a horizontal construction. The arch had become familiar long since to the Eastern world. Arched forms, wedded to Greek outlines, was the ideal of the Roman architects; and from that day to the present arched buildings have been the rule. The influence of the arch on the æsthetics and construction of our art is too great a subject to be dealt with now; but it may briefly be described as an attempt at power at the expense of repose. It introduced difficulties of stability unknown, or, at least, not experienced before, and gave rise to a variety of constructional expedients of the highest skill and ingenuity. At the same time the true artist recognised always the necessity that his work should assert its *permanency*. Accessories were called in to accomplish this end. Terraces and rusticated basements gave a solid base to the superstructure; towers and buttresses were added to counteract the ever active warfare of the insidious enemy within; and everywhere in true architecture do we find the recognition of *permanency* as one of the essential principles of the art. Passing now to another point, it is desirable to consider what other qualities are necessary to true architecture. Beauty being the essence of art, its presence may be looked upon as decisive in the works

of the sculptor and the painter. It must also be present in that of the architect, but something more is wanted. His efforts will surely be condemned if not presided over by the principle of convenience. We have seen how architecture arose from the necessities of mankind, as the first simple wants of warmth and shelter expanded into the more elaborate requirements of the State and the individual. To study the requirements of convenience, and to adorn the useful with beautiful and appropriate ornament, is therefore the duty of the architect. It is his place to consider how by the arrangement of masses and outlines artistic beauty and chiaroscuro can be obtained without the sacrifice of practical convenience. The combined result will be the triumph of his art, and without such combination failure must ensue. Works are seen every day, particularly engineering structures, which must be assumed to be convenient, as they possess no other merit, but these can in no sense be termed architecture. On the other hand, buildings may be found of much beauty, the pride of their architects, but which must be condemned if tried by the law of convenience. It is the duty of the true architect to so practise his art as never to forget common sense. His buildings should be expressive, and his architecture consistent with the purposes to which the structures are devoted. A church should not appear like a theatre, a palace like a prison, and so forth. This will be so readily admitted that the reiteration of such principles will, perhaps, be questioned as unnecessary. But, in truth, the principle admits of much more extended application. True ideas of fitness would proscribe many favourite and fashionable practices, and would subvert many cherished ideas. There are those who appear to consider it the highest aim of architecture to construct a church so that it might seem to have been erected in the thirteenth and not in the nineteenth century, or a concert-hall that might have been a temple in the palmy days of ancient Greece. Such things can only be considered triumphs of archaeology. In this architectural aspect they are constructional falsehoods. They sin against truth and convenience, and though they may suit the fashion of the day, a real progress of art must be impossible while such principles are in the ascendant. In the times of which we have taken a hasty review such practices were unknown. If it may be that the Greeks were indebted to the Egyptians or their predecessors, they at least did not directly imitate them; and the amount of controversy on the subject, if it proves nothing else, bears witness to the real artistic originality of this wonderful people. Truth and convenience have always been the guiding principles of real architecture, and at no time more so than in the Middle Ages. In a Gothic cathedral we have the fullest expression of the art of the day. We may suppose it to be the product of many intellects, working under the direction of one architect as commander-in-chief; but with all who co-operated convenience was paramount. The clergy laid down the rules appropriate to the purposes for which the church was built. The choir, chapels, and aisles must be of the dimensions required for use. Everything was to have its purpose and be in its right place. We may be sure no columns would be tolerated to intercept a necessary view because they had been so used elsewhere, under different circumstances, hundreds of years ago. The same principle of convenience made itself felt throughout. The master mason, the cunning artificer in iron and wood fell equally under its sway, and the result has been the production of works which are a source of joy and pleasure to each succeeding generation. There can, indeed, be no more mischievous assumption than to suppose that in architecture convenience and art are foes and irreconcilable. Such a doctrine is condemned by the experience of all ages, and could only be put forward from ignorance. Art is the true instructor of the people in refinement, and all that elevates the senses. The painter

* By Mr. E. M. Barry. Read at Royal Academy, London.

and the sculptor share this high mission with the architect, but the latter has a privilege beyond. He has not only to think of the works of the State, and the palaces of the rich,—the arrangement of cities, and the provision of healthy, convenient, and artistic houses for the poor are within his province; and in bringing his art to bear on these matters, he has the proud satisfaction of feeling that he is serving purposes of real public utility, and is adding to the happiness of his fellow-creatures. The principle of convenience, as well as that of permanence, must therefore, never be wanting in real architecture; but to these must be added beauty. Without this our buildings may be triumphs of science, but they will not be works of art. The question of how such a combination is to be effected is the difficulty, as its solution is the glory, of the architect. To attempt to secure it by loading a structure with so-called ornament is the most fatal, as it is the most vulgar, of fallacies. Indeed, the very word ornament is too frequently misused, so as to convey the impression that it is synonymous with beauty. A building, however, may charm us from its proportion with grandeur of its outline, and masses, apart altogether from considerations of what is termed ornament. I know nothing more beautiful and impressive than the interior of Westminster Abbey in the dim twilight of a winter's afternoon, when there is not light enough to discern more than the main features of the structure. The fine proportions and exquisite symmetry of the building suffice in themselves to strike the mind, and to fill it with the sensation of present beauty. It is no doubt true that in a perfect work art-decoration must be considered indispensable, but there is this difference between decoration and beauty of proportion, that without the latter nothing can please, while it is possible to recognise beauty in an architectural work which is deprived of the advantages of the former. It may be questioned whether this principle has of late years been sufficiently recognised. A passion for ornamental detail has often seemed to obscure the true principles of art, and when we have looked for the indescribable charms of symmetry and proportion we have been asked to be content with carelessly-planned and over-decorated ugliness, seeking to disarm criticism by calling itself "picturesque." But, though proportion may be the first quality essential to beauty in our art, it is not of course sufficient in itself. It must, as we have seen, be supplemented by beautiful and appropriate ornament. The architect must go hand in hand with the sculptor and the painter. In this country, for various reasons the latter have scarcely ever a fair chance, and the architect has had too often to lament over consequent incompleteness in the realization of his conceptions. To diffuse nobler and juster ideas on this subject would be a work worthy of this Academy. In such an event we should cease to tolerate any art but the best, and the bareness of the interior of St. Paul's and our public buildings would no longer be matters of national reproach. And such hopes are not altogether visionary. Were it not for the salutary rule which forbids reference to living persons, names might be mentioned of artists honoured within these walls who have given, and are giving daily, practical proofs of this view of the importance of their principles. The first steps are not easy, and their disinterestedness is often their only reward. The more honour to those who tread the difficult path, and are contented to rejoice in the honour and glory of their art. But while contending with the fraternal union of the painter, the sculptor, and the architect, as essential to the production of perfect architecture, it must not be forgotten that the architect must in this case be "*Primus inter pares*." The decoration of the structure must not interfere with the principles of his design, and there must be a general willingness to sink self-assertion, and co-operate in the productions of a perfect whole. If it be rightly forbidden to speak here of the living,

it may perhaps be permitted to allude to one whom this Academy still freshly deploras, and who has left us some striking examples of mural art. I mean the late Daniel Maclise. Unselfish and ever true to his art, he has left his monuments in the Royal Gallery at Westminster. We can now only too late regret that but for discouragements which might have been avoided, we should have had a completed series of noble paintings where now two grand fragments alone exist to adorn his memory. The introduction of sculpture is again a subject on which the architect should have a decisive influence. Disregard of scale is but too frequent when this is not the case. Thus that which is intended as an adornment becomes the defacement of the work. The sculpture injures the architecture, and the latter the sculpture, and the result is failure. Gibson's fine group in the small chamber behind the House of Lords may be here referred to. Placed in a room of moderate dimensions, and in a position where it cannot be seen to advantage, it can only rouse feelings of regret that a place more worthy of its merits has not yet been allotted to it. A position on the staircase at the end of Westminster Hall, with some arrangements for controlling the light, might probably be found more worthy of the importance of the subject and the genius of the sculptor. Time does not allow the further illustration of these views; but many instances to the point will doubtless occur to you. If I plead earnestly for the controlling power of the architect, it is from no wish to magnify his office, but from a conviction that it is the only mode of avoiding confusion. No architecture can be really perfect which does not receive the support of its sisters Sculpture and Painting; and no fashion of building can be commended which imposes on them unworthy rules, and rejects their highest perfection. We cannot doubt that these were the convictions and practice of the Mediæval architects, and an enlightened adherence to their principles would put an end to anything like an unintelligent copying of their defects. Whatever the architecture of the future is to be it is clear that it must be consistent with the display of the sister arts in their completest state of development. Is it too much to hope for such a consummation, or to look forward to a time when this employment of the fine arts allied to the marvellous progress of science will again produce masterpieces of architecture for the delight and instruction of an enlightened world? In the meantime we may be sure that a new style will never be discovered by talking of it. It must arise, if it is to come, naturally from the wants and requirements of the time. To force these requirements into an artificial and, perhaps, retrograde channel is not the province of the architect. It is his part to study and guide them by his knowledge and artistic genius, controlled by common sense. Architecture, if pursued on other principles, claiming to dictate when it should be content to follow, may find itself left dreaming on the bank, while the great stream of human progress rolls on ever deepening and ever increasing in its way to that mysterious goal when all things finite must find their solution. It should be for us, gentlemen, to avoid such illusions, and, while studying the glories of the Past, not to lose sight of the wants of the Present or the promises of the Future.

DUBLIN MAIN DRAINAGE AND SEWAGE UTILIZATION SCHEME.

A NUMBER of the ratepayers and owners of property in the proposed Liffey Main Drainage District have resolved to apply to Parliament to order an inquiry into the plan proposed by the Dublin Corporation for the drainage of the city and suburbs. In a statement put forward by their committee we find the following:—

"The Corporation seek for unlimited rating powers. It is advisable, as in the cases of the London Main Drainage and the Dublin Water Works, that the cost of the undertaking should be ascertained by a

preliminary investigation, and that thereon Parliament should fix and limit the rate to be imposed. (In the London case, the rate is at 3d. for 40 years.)

The Corporation seek for powers to borrow £350,000: their engineer's estimate is for £230,000. Which is, or is neither, the correct sum?

The Corporation, yielding to Board of Trade and other objections, propose that, instead of sending the sewage seawards, it shall go to Baldoyle, under a 'concession' for 25 years, to a 'Sewage Utilization Company (Limited),' to be created for the occasion. To this company the Corporation will transfer, and thereby get rid of, all its sewage responsibility, it being, as we are assured, the every-day practice of Parliament to sanction transfers of the kind, provided the deed have the proper seals and signatures attached. It may be well to ask, Does Mr. Bazalgette, the Consulting Engineer of the Corporation, concur in this view of Parliamentary liberality? In his report on Messrs. Barrington and Jeffers' Utilization Scheme of 1866, he says, that as the scheme would probably be unremunerative, it would, when abandoned by the company, impose upon the Corporation the expense of the pumping stations and of useless drainage works. Evidently Mr. Bazalgette was of the opinion that the city seal, and the 'limited' seal, notwithstanding, the rates and property of the city would be liable to all concerned, next after the Limited Liability Shareholders, and when these had duly paid up or compounded for their respective shares. And what may be our utilization liabilities? Why, so lately as on the 10th inst., the Vice-Chancellor of England granted an injunction against the Corporation of Birmingham, at the suit of inhabitants residing adjacent to 20 acres of land taken for sewage utilization by that Corporation, the process having proved pernicious to the public health; and in the present Session the London Metropolitan Sewage and Essex Reclamation Company are promoting, and the London Metropolitan Board are opposing, a Bill to make the London rates liable for some of the expenses of the company. Would our friends in the Corporation kindly give us the name of the sewage company that has proved a success?

The Corporation propose to utilise not only their own, but the suburban sewage. It may be well to inquire into the expediency of conveying the sewage of Rathmines, &c., through such costly tunnels as that under Summer-hill, and across the city to the North Bull, and thence to Baldoyle and Malahide. The utilization of fluid sewage in land irrigation, as has been proved (see Report of Commission on Rivers Pollution), can be best effected in small and not in large quantities. Why does the Corporation insist upon the contrary?

The Corporation took powers to borrow £300,000 for the Vartty Works. They now owe for these works about £500,000, or, adding the old pipe-water debenture debt, about £570,000, for water works. Suppose like case like rule for the Main Drainage—a borrowing commencing at £300,000, ending with £550,000—and the limit of two years' valuation of the entire assessable property in the city being thereupon reached, the entire borrowing powers at present allowed by law for municipal improvements will be exhausted in Dublin. And if the like rule of repayment is to apply to this as to the Vartty case, there can be no prospect of immediate relief. Not a shilling of the Government Loan, borrowed in 1862, has as yet been repaid; on the contrary, year after year, down to the present year 1871, loans have been contracted and fresh incumbrances created.

Thirteen petitions have been lodged against the Corporation Bill. Twelve of these proceed from boards and owners of property, whose objections may be removed by compensation, or by other concessions, which may, as in the well-known Tighe case, impose serious burdens upon the citizens. Is it the wish of the citizens that the discussion of the foregoing and the other questions at issue shall be left in the hands solely of the representatives of the Corporation, and of those twelve petitioners?

The High Sheriff of the City, in addressing a meeting held on Friday last in the Rotundo, made the following remarks:—

I take it that this meeting is not convened in a spirit of factious opposition to the Corporation, or to the main drainage. It is called together on very different grounds. We don't object to the main drainage; on the contrary, we should always wish to see the Liffey a pure and wholesome stream, flowing through the city, to the refreshment and healthfulness of the citizens, not a polluted and pestiferous stream, as it has been for a long time. But whilst it is desirable that we should have a main drainage system, it is also desirable that we should know how much we are to pay for it.

Messrs. Hayes, Bagenalstown, are the contractors for extensive improvements at the parish church of Gowran, Co. Kilkenny, from plans by Mr. Wyatt, London.

CONNOREE MINING COMPANY.

At an extraordinary general meeting of the above company, held on Tuesday, in the board-room of the offices, Dame-street, under the presidency of Mr. John F. Connell, a special resolution, adopted in February last, authorising the conversion of the capital of the company into stock, was unanimously confirmed. The chairman referred at some length to operations carried on at the mines since he last addressed the proprietors, stating that they were about to work the forty-five and fifty-four fathom levels, both of which had been under water for the last four or five years, and neither of which, though comparatively rich, had ever been worked for copper. He also referred to two new descriptions of ore, yielding respectively 10.66 per cent. and 4.91 per cent. of copper, which had been discovered, and which was ascertained to be in considerable abundance between certain of the upper levels. Capt. Jones also expressed great confidence as to the future, and showed his faith in the stability of the undertaking by subscribing for fifty of the preference shares, his brother engineer, Capt. John Dower, taking twenty. In consequence of a dispute with the Dublin and Wicklow Railway Company, who have recently raised the metals from a branch line into the company's mines, it has been resolved to purchase a steam road engine and trucks for the conveyance of the ores to the harbour of Wicklow, by which it is thought a great gain will be effected.

L A W.

COURT OF BANKRUPTCY.—March 28.

(Before Judge Miller.)

In *Re William B. McMaster*, builder.—The question of final examination had stood over for notice to the trustees of an arrangement which he had endeavoured to carry out by deed. Mr. Meldon appeared on behalf of the assignees, and stated that the trustees had been served with notice, and did not object to pay the passing of the bankrupt's final examination. With reference to the trustees' account, they stated that as soon as they should have received a report from an accountant appointed by them, they would proceed to vouch. His lordship passed the bankrupt's final examination.

In *Re George Douglas*.—The bankrupt was a builder in Anne's-lane. He had also two houses in Harrington-street. Mr. Carton, instructed by Mr. Larkin, on behalf of the assignees, stated that at the time the houses were built his assets were deficient to the extent of £562, his debts being £1,735. The bankrupt was examined, and stated that he had mortgaged one of the houses in Harrington-street to the "Irish Civil Service and General (Permanent Benefit) Building Society," to secure a building advance to the amount of £350, and, subject to this mortgage, he had put them in settlement, on his receiving a sum of £500 at his marriage. At the close of the bankrupt's examination, Mr. Carton said the case appeared a perfectly fair one, and he would offer no objection to the passing of the final examination.

MISCELLANEOUS.

Plastic slate roofing is made by combining finely pulverized or bolted slate flour and viscous matter (coal tar) to about the consistency of thick mortar: this is spread on a foundation of water-proof double-slate felt. The felt, consisting of two thicknesses of single felt with a layer of plastic slate between them, is laid across the boards, each edge being coated with plastic slate, and lapping two and one-half inches. The edges are fastened down by nailing on cleats imbedded in the plastic, and the whole covered with a strip of felt five inches wide fastened down with the plastic. The cleats may be elevated so as to make a ribbed roof, or flat for a smooth unbroken surface. This lining of felt is designed to insulate the mastic from the boards, lest their contraction and expansion should injure the covering. It is not necessary to match or tongue-and-groove the sheathing-boards, but the more solid, level and close they are laid, the

better and more durable will be the roof. After the process of felting the roof is completed, the plastic slate, mixed as previously described, is then spread upon the felt three sixteenths of an inch thick, with a trowel, and finishes a complete flexible slate roof, in one solid sheet, without seam or joint. Plastic slate can be used in the same manner as zinc, on horizontal, angular and perpendicular planes; in fact, is adapted to roofs of every description. Churches and Gothic dwellings, as well as flat-roofed structures, can be protected with it. Some have thought that the best of the summer's sun would soften and cause it to run, but such is not the case, as it has been proved that the rays of the sun do not affect it detrimentally, but on the contrary, improve it by causing the materials to reconstruct more rapidly, thereby leaving a fine, slaty surface, sufficiently hard to walk on without danger of marring its beauty or injuring it, and yet soft and flexible underneath. It will remain in that elastic condition for a number of years, on account of the very slow process of evaporation, by which the slate is reconstructed, the tar remaining in the slate floor for a sufficient period to restore cohesive attraction that was sundered by the process of pulverizing.

The *American Journal of Science and Arts* for March contains a paper 'On the Porcelain Rock of China,' by Baron von Richthofen, of Shanghai, who visited the King-te-chin district, where the Chinese have made nearly all their porcelain for about 3,000 years. He appears to show that the Chinese Kaolin is not found under similar circumstances to the China-Clay of Cornwall and Devonshire. The porcelain rock of King-te-chin is stated to be of the hardness of felspar, and of a green colour, like jade. This rock is reduced to powder, and made into bricks of two kinds, one being called Kao-ling, and the other Pe-tun-tse, the supposed equivalent of Cornish China stone. The British porcelain clay, Kaolin, exist as a soft imperfectly formed variety of granite, and the China stone, Pe-tun-tse differs from it only in being a more talcose rock.

A GOVERNMENT CONTRACT.—During the winter (says the *Glasgow Mail*) building operations at the Garioch Barracks were almost suspended, owing to the inclemency of the weather. With the advent of spring, however, there has been no show of activity, and it is understood that the works are virtually stopped on account of the strictness of the superintendence of the Government officials. In order to satisfy the requirements of the officials, a quality of material and workmanship superior to what was provided for in the original specification was found necessary. This was particularly the case as regards the mason work; and as the contractor was losing considerably, he applied to the Government for indemnification. They inquired into his representation, and being satisfied of its truth, made him an offer to cover the extra expense, which, however, was relatively a mere trifle, and was consequently refused. The same strictness of superintendence interfered with the woodwork. Mr. Kirk, the contractor, entered into an agreement with a timber merchant for a supply of wood, and care was taken to make special selection of the logs. Notwithstanding this selection, however, about the half of them were rejected by the officials. A contract was also made with a firm for the "best paint;" but the officials having analysed a sample, condemned the whole as chemically impure. The manufacturers being asked to furnish a better quality, stated that they were unable to do so, though they sent a second lot, which was also rejected. Application was then made to two or three other paint firms, with no better result, and at length the manager complained to the officials that he was unable to satisfy their demands; at same time producing correspondence with the manufacturers, showing that the paint rejected was really the finest quality in the market. With regard to lime, again, the specifications fixed Castlereary lime as the quality to be used in the building operations. This was accordingly done; but about a week ago the officials notified that they would subject the lime to an analysis, and if it was found to contain 8.47 of soluble silica, it would be condemned. Under these circumstances the contractor has found it impossible to proceed with the work, unless at a considerable increase on the estimates, and, pending the decision of the Government, the works are virtually stopped.

THE NEW SOVEREIGN.—The Right Hon. the Master of the Mint is to be congratulated on his last achievement. Congratulated, that is to say, if the new coin is to be regarded from one point of view, and weighed in one particular balance. If it be desirable that the gold currency of Great Britain should be made the symbol of the adoption of a certain set of views by the administration—if it be wise to proclaim to the world, by the widely-circulating testimony of the English sovereign, that the rulers of England are contentedly or contemptuously ignorant of fine art—if it be satisfactory to furnish abundant proof that, in the direction of the English Mint not

only artistic talent, but also mechanical excellence, are entirely disregarded—the new sovereign must be held to be a great success. For this is what it does, upon the face of it—it bears the same relation to the gold coins of the best period of our currency, that a print from a slovenly cliché bears to a proof engraving. It is a crucial instance of the difference between what is cheap and what is good. It betrays an equal ignorance of the laws that so regulate a coinage as to give it historic value, and of those which regard either its æsthetic propriety or its artistic merit. The only thing left for its originators to regret is, that existing prejudices have prevented them from stamping their new issue in aluminium or Abyssinian gold — *Art Journal*.

ROYAL DUBLIN SOCIETY.—An evening scientific meeting will be held on Monday evening next, in the Lecture Theatre. Communications:—1. James Dillon, C.E., M.I.C.E.I.—"On the Defects of the Irish Railway System, and the best way of Constructing Cheap Branch Railways." 2. Mons. Henri Charlier—"On an Improved System of Horse-shoeing."

PATENT PRINTING MACHINE AND REGISTER.—M. Bebro has patented a machine for printing tickets in large quantities for railways, steam boats, places of public amusement, &c. The machine is capable of printing on both sides, numbering consecutively, and perforating 1,000 tickets per minute. A roll of paper being placed on the machine the printing and perforating go on simultaneously, and the machine requires no attention until the roll of paper is exhausted. The printing is done by an ingenious adaptation of the usual cylinder process. In passing from one printing cylinder to the other the strip of paper is brought into contact with an intermediate cylinder, which makes a series of perforations in the line of division between the respective tickets. While the perforation is being executed the consecutive number is impressed from beneath. The part of the machine by which the numbering is done consists of a cylinder between two and three feet in diameter, and about the same in length, on the periphery of which are arranged figures (ordinary movable types) from 1 to 3000. By placing the numbers in a continuous spiral line round the cylinder, and making the latter move along its axis at a certain rate, the numbers are presented and printed from in succession with unfailing accuracy.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homœopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

The growing wealth and refined taste of the country is not more strongly illustrated than in the furnishing of our mansions, houses, and villas. The best artists are employed from France, Italy, Germany, and Switzerland to model and design ornaments for the mantelpiece, sideboard, &c., and we seek from every corner of the world for marbles, woods, and other materials for the manufacture of these ornaments. This is shown at that magnificent establishment at Old Bond-street, London, where there are clocks ornamented with fine enamel from the Imperial manufactures of Sevres, and marbles of black, malachite, white, rosée, serpentine, brocatelle, porphyry, green, alabaster, lapis lazuli, Algerian onyx, and Californian, with numerous others of richly coloured materials. Mr. J. W. Benson, of 25 Old Bond-street, and of the City Steam Works, 53 and 60 Ludgate-hill, will have much pleasure in forwarding, post free, on receipt of two stamps, illustrated pamphlets, &c., of watches, clocks, jewellery, &c.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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commence the construction of her railways, there was a most perfect system of mail coaches established over the whole country, and a very large goods traffic in connexion with her manufactures, carried on her macadamised roads; and Parliament, fearing that the different railway companies would injure the roads by introducing steep and narrow inclines over and under the railways, thus impeding a large and important traffic on said roads, passed a number of rules from time to time, now known as the Railway Standing Orders. The Standing Orders, together with the Act of Parliament 8 Vic. c. 20, passed in 1845, makes it compulsory for the companies to construct very broad and costly bridges for mail coach roads, with inclines over same of not less than 1 in 30, and a breadth of roadway of not less than 35 ft., other roads being 10 ft. less.

This may have been necessary for a country like England, but Parliament committed the great mistake of rigidly applying the same Act of Parliament to Ireland, where mail cars were used (except in very few instances) instead of mail coaches, and where the ruling gradients of the mail car roads were much steeper than 1 in 30 (a car not requiring as level a road as a coach), and where the traffic on the country roads—particularly through grazing districts—was so small as compared with England, that much smaller and cheaper bridges would have suited Ireland; but the majority of the Members of Parliament, being ignorant of the wants of the country, could not see the mistake they were committing, and instead of sanctioning steeper inclines and smaller bridges, and in some cases level crossings for roads, where one or two carts might pass in a day, they compelled Ireland to waste hundreds of thousands of pounds in constructing useless road approaches and bridges. But for this blunder, many of our branch lines would now be paying a dividend, because it not only led to the useless construction of bridges, but the railways had to be raised on embankments, and sometimes put into cutting so as to cross a road, the surface of which could not be altered on account of its inclination exceeding the Parliamentary limit, thus frequently entailing enormous cost.

In support of this, I shall briefly state the opinion of Mr. Bidder, one of the ablest engineers in England. Speaking of "Cheap Branch Railways," during a debate on the subject, before the Institution of Civil Engineers, London, in 1865, Mr. Bidder stated—

"The Standing Orders of Parliament interfere very much with such lines. Parliament said, 'A railway shall not cross a public highway in England if it interferes with its level, excepting it be made with a gradient of 1 in 20 for a parish road, and 1 in 30 for a turnpike road; nor shall it cross a road on the level without permission.' Of course, these were questions of local circumstances: 1 in 20 might be a proper gradient for London; but there were districts where the normal gradients were 1 in 7, or 1 in 10, and where the traffic might amount to three vehicles, or four vehicles per day. No attention was, however, paid to the fact, nor were reasons listened to, but a gradient of 1 in 20 was insisted on.

"He had to say on one occasion in committee, that if such conditions were to be abided by, he could not prove the preamble, for the gradient of the valley being 1 in 11, 1 in 20 would go quite across the valley. But what he proposed was, to spend £500 in improving the road on the other side of the railway, leading to the nearest village, and then the bill was passed.

"With regard to level crossings, he feared he had been a great offender, for on one line he had made as many as thirty-eight level crossings on as many miles of railway. But now the rule was, that there should be no level crossings. In consequence of this, where the Great Western Railway crossed a country road at its apex, at a most convenient place for a station, especially for minerals, the engineer was compelled to avoid making a level crossing, though it was near the highest point of the country, and to raise that road 15 or 16 ft., at a cost, he believed, of £7,000 or £8,000. The company could not have a station there, the opening of the line was delayed for several months, and the thing was a nuisance to the neighbourhood."

If thus, as proved so clearly by Mr. Bidder, the Railway Standing Orders are un-

suitable for England, leading, as they do, to an enormous waste of money, how much greater must the injury be that they inflict on Ireland, where the local traffic on the country roads can only be a fractional part of that on the English roads, and where the railway receipts are proportionately small?

Subsequent to the publication of Mr. Bidder's remarks above referred to, the Board of Trade have not, as a matter of favour, applied the law relating to level crossings as rigidly as in former years, but this system works most injuriously; for example:—

Previous to 1865, I was much engaged in laying out new lines of railway in Ireland, and in numerous instances I had to estimate for costly embankments and cuttings, so as to provide for public road bridges over roads where one or two carts might pass in a day, whereas, had I been permitted to substitute level crossings for said roads, it would have reduced my estimates by some thousands of pounds, but, as I knew the lines would be opposed by existing and competing railway companies, I was obliged to avoid all departure from standing orders, to prevent said companies opposing on the ground of non-compliance with said standing orders; and in one of the cases I refer to, it was not until after the line was sanctioned by Parliament and opposition frightened away, that it was deemed prudent to try and obtain Parliamentary sanction to substitute certain level crossings for the very roads we had in the first instance to provide bridges for, thus necessitating the expense of a second Act of Parliament, not being certain how the Board of Trade might act in the face of opposition.

Another peculiar feature of the last-named case was, that the new line was to form the second section of a line; the first section having been made some seven or eight years. No public road level crossings were allowed on the first section of the line, although there was scarcely any traffic on the roads, the district being a grazing one; thus necessitating the useless expenditure of some £20,000 on a line about twenty-two miles in length; whereas some nine or ten public road crossings have within the last couple of years been sanctioned on the second section, or extension of said line, the country being similar as regards traffic; but the big railway companies withdrew their opposition, and the difficulty was got over by a second application to Parliament.

This one-sided application of the law is most unjust, and therefore the Act 8 Vic. cap. 20, that deals with this part of the subject, ought to be repealed, so far at least as it affects Ireland, and a new one substituted, making it legal for railway companies to alter all roads in the least expensive way, provided the roads crossing the railway were not to be made steeper, and the bridges not made narrower than the average incline and breadth of bridges on said roads, and provided that the average did not exceed a limit to be fixed by Parliament, and that railway level crossings should be sanctioned in all cases where their adoption would not affect the public safety; as, for instance, public cross-roads,—for it must not be forgotten that the extension of the railway system diverts much of the heavy traffic from the country roads on to the railways. I think, however, important leading roads should be crossed by bridges, if their levels admit of it.

If the Irish railways and branch railways have been constructed on a larger and more costly scale than the English, American, and Continental railways, where the population amounts to tens of millions, it is easy to understand why our branch railways do not pay a dividend, and this leads to another evil: the different companies having spent all their available capital on the construction of their lines, are, from want of funds, obliged to use the same class of rolling stock and engines for the main line and branches, thus necessitating the same expenditure for the haulage of thirty passengers and a few tons of goods on the branch that would be sufficient for 500 passengers on the main line.

The result is, the working expenses on the branch lines absorb from 45 to 60 per cent., and even more, of the gross receipts, while the balance for dividend has to be apportioned on a capital double what it would have been had the lines been designed on the basis of the traffic and area of Ireland, and made for cash prices, instead of being made by contractors on credit, assisted by Lloyd's Bonds.

I shall now deal with the second division of the subject:—

HOW TO AVOID THE DEFECTS OF THE PRESENT RAILWAY SYSTEM.

Foreign Governments having profited by our costly experiments, have already constructed many cheap broad and narrow gauge railways at little more than half the cost of our branch railways, in Norway, Sweden, Vancouver's Island, and India; while the Festiniog Railway in Wales, constructed on a gauge of 1 ft. 11½ in., ascending a height of 700 ft. in a length of thirteen miles, round curves of only 198 ft. radius, and worked by locomotives, has proved a success. I have travelled on this line at the rate of twenty miles per hour, with the most perfect safety and comfort.

With reference to the question on what gauge should our future branch lines be constructed. It cannot be denied that a break of gauge should, if possible, be avoided, and that the whole of the Irish railways should be of the same gauge; but, as we now know that the proper gauge for Ireland would have been 3½ ft. instead of 5½ ft., I am of opinion that if the landed proprietors find it impossible to raise the necessary capital to construct their proposed branch lines on the present gauge of 5½ ft., that on satisfying the proper authorities on this point, they should be permitted to construct their railway on a 3½ ft. gauge, or even less, should the district be a very poor one, because narrow-gauge railways could be constructed in this country much more cheaply than broad-gauge railways, and would be able to do the work required of them for the next 100 years or more.

In the hope of avoiding break of gauge, however, I shall state briefly the distinctive features of the system I, in common with other engineers, propose for agricultural districts, the gauge being the same as the main lines of the country—that is 5½ ft.

1st. Abandonment of road bridges.—By this is avoided a large expenditure in the construction of road bridges over the railway, and the embankments leading to same; and as most of the traffic in an agricultural district would be carried by rail instead of by road, the adoption of level crossings can lead to no practical inconvenience. Adjoining each crossing there would be a good cottage built, which could be inhabited by the milesman on that length, his family minding the crossing during his absence. This secures some of the workmen being always near the line. The system is found to work well, and reduces the average cost of lines by £1,000 per mile.

2nd. Substituting passenger sheds for stations.—This will avoid the expense of station buildings, officers and servants, &c., for small roadside stations, where there are but few passengers, by the guard of the train having power to issue and receive tickets, &c.

A railway porter, to receive parcels, &c., would be placed in charge of a cheap passenger shed, composed of 1st and 3rd class compartments, and who could work the station signal. This arrangement would save four-fifths the cost of a station.

3rd. Reducing the weight of engines and rolling stock.—By this a large expenditure would be saved in the first cost of the engines, carriages, wagons, &c., as it is not proposed to run more than 20 miles per hour, as compared with 40, 50, and 60 miles per hour, the speed run on some lines. But, inasmuch as the weight and cost of the rails can be reduced by one-half because of the reduction of the weight of the engines, and distributing the

reduced weight on three instead of one pair of wheels, which latter have heretofore regulated the weight of the rail, and the weight and cost of iron bridges used on railways. This modification will reduce the cost of the line by nearly another £1,000 per mile.

4th. Reduction in the weight of rails and sleepers.—By this the cost of sleepers will be reduced by nearly one-half, as smaller dimensions will suffice; and the larch sleepers rejected by the main line companies as being too slight, would be strong enough for the branch lines.

5th. Reducing the radius of curves.—This will enable an enormous saving to be effected in the earthwork of a railway, where the country is hilly, because, instead of having as formerly to lay out the line through hills, the hills can now, in the majority of cases, be avoided by curving the line round the base of a hill or spur of a mountain, instead of having to cut through them as formerly. This great improvement in the laying out of lines was not practicable until the Americans proved that their bogie engines were just as safe as our English engines.

The advantage the bogie engine has over the English engine is this—that the front wheels work on a pivot, like the front wheels of a cab, so that their tendency is to follow the curved rails, whereas, in the English engines, the frame being rigid, the wheels work in a straight line, forming a tangent to the curve, at the same time having a great tendency to run off the rail; and so great is this tendency that the outer rail has to be raised far above the true theoretical height, or what would be necessary to counteract centrifugal motion, if the structure of the engine frame could be made to work on two or three centres.

Engines of this form work so smoothly, that although the American railways are clumsy, and the rails and sleepers badly and imperfectly laid, the engines and carriages supported on Bogie frames in America work as smoothly as our carriages on our more perfect railway. Engines of this type have been used by Mr. McDonnell with great success on the Irish Gt. S. & W. R., and one suitable for a branch railway could be made for half the cost of the engine now used.

Bissell's truck engine is another form of the Bogie engine, the moveable truck being supported on one pair of wheels instead of two, and I think on account of its great simplicity would be well suited for small branch-line engines of about 10 or 12 tons. These engines could be worked with safety on rails half the weight of the rails now in use, as the load on even the driving wheels need not exceed 3 tons on each wheel.

To give you some idea of how completely the introduction of this class of engine is likely to revolutionize the construction of railways, I may mention that while acting as engineer for the late Mr. Dargan, on extensive railway works, in numerous instances I could have saved £2,000 per mile, had the Bogie class of engine been generally adopted in Ireland some fifteen years ago.

The Act 8 Vic. clause 14 limits the radius of railway curves to 2,640 ft., unless by special permission from the Board of Trade, whereas this engine will work round a curve of 300 feet radius. This Act must, therefore, be repealed if we are to have cheap railways.

Again, owing to the driving wheels being coupled with another pair of wheels, this engine will allow the engineer to reduce the height of embankments, and depth of cuttings, by adopting steeper inclines, as it has a greater bite on the rail, in proportion to its weight, than the old engines.

6th. Reduction in the quantity of land.—By this will be saved a large portion of the purchase-money for the land, because of the smaller dimensions of the top of cuttings and base of embankments; and in the case of narrow gauge lines a reduction in the width along the entire line.

As a Narrow Gauge Railway has never been introduced into Ireland, the following description of the Festiniog Railway, actually

completed and at work, will be found interesting:—

This railway connects the extensive slate quarries lying to the north of the village of Festiniog, in the county of Merioneth, North Wales, with the shipping port of Portmadoc. It was originally intended as a mineral line only, although powers were taken in the Act to levy tolls for passengers also. The gauge is two feet. It is a single line, except at the stations. The rails are 30 lbs. to the yard, laid in cast iron chairs of 10 lbs. each for intermediate ones, and 13 lbs. for joints; but the company have begun to lay rails of 40 lbs. to the yard; it is also intended to fish these. The rails are fastened into the chairs with large wedges. The chairs are spiked to cross sleepers placed 1 ft. 6 in. apart at the joints; the intermediate, 2 ft. 8 in. apart; joint sleepers are 4 ft. 6 in. by 10 in. by 5 in., and others 4 ft. 6 in. by 9 in. by 4½ in.

Engines.—The cylinders are 8 in. diameter with a stroke of 12 inches, running on four wheels, coupled, 2 feet in diameter, and axles 5 feet apart (Captain Tyler recommends trailing wheels in addition, with radial axle, to steady the locomotive). The water tanks are round the boiler, and the fuel is carried in a four-wheel tender. The engine weighs seven and a-half tons.

The passenger carriages are 6 ft. 6 in. high, and 6 ft. wide; floor, 8 in. over rail. Passengers sit back to back. The wheels are 1 ft. 6 in. diameter, and 4 ft. apart. The carriages are attached by central couplings, and there is one central buffer.

The slate wagons are about 6 ft. 6 in. long, and 3 ft. wide, made of iron. Wheels 3 ft. 6 in. apart, 1 ft. 6 in. diameter: to these are neither springs nor buffers. The original trucks were made of wood, but the iron are substituted for the worn-out wooden ones. The goods wagons have the same size of wheel, and the same wheel base as the slate ones, but are 5 ft. wide, and made of wood.

The sharpest curve on the line is three standard chains radius, going round which the speed is limited to eight miles an hour, twelve being the limit on other parts of the line; but a carriage has been round this at the rate of about twenty miles an hour, and Captain Tyler, the day of the inspection, took the train round at about fifteen. No guard rails are used.

The steepest grade is 1 in 61 on the main line, and 1 in 69 on the branch. The line rises gradually in round numbers 760 ft. from Portmadoc to the upper terminus, and the traffic arrangements are worked as follows:—One engine takes the up train half way

where there is a long siding, and the down train passes it, and another engine takes it the rest of the way. The line inclining down the whole way, the train descends by gravity; the slate train proceeding first, then the engine at a distance of 200 yards, and lastly the passenger train, at a like distance, behind the engine. The passenger train (the day of the inspection) was brought to a stand, from the rate of thirty miles an hour, in about twenty yards.

The over bridges are 8 ft. over the rail, and one of them only 8 ft. wide. Also a tunnel half a mile long is only 8 ft. wide.

The majority of the under bridges have slate girders, which are found to answer remarkably well.

The embankments are built in dry rubble masonry; one of these is 70 ft. high. The batter at each side is generally about 1 in 4.

The Engines cost about £700 each.

First Class Carriages	200	„
Second and Third	120	„
Slate Wagons	20	„
Break Vans	60	„

The engines have a plough 2 inches over the rails, attached to the front, and also to the back of the tender, as the engine runs down backwards. Also the same pattern plough is fixed to the break van, which comes down in front of the passenger train.

Having pointed out what great reductions can be effected in the cost of construction, the most sceptical must admit, that if the present cost of working the branch lines averages from 40 to 60 per cent. of the gross receipts, in cases where empty carriages are drawn by powerful engines, and where roadside stations and station-masters have to be kept up for the accommodation of a few passengers, and when heavy engines, at high speed, hammer out the rails and crush the sleepers when partly decayed, thus necessitating costly renewals, there cannot be a doubt that by the adoption of the system now proposed the working expenses could be largely reduced on branch railways.

It will now be necessary to ascertain what would have been the result if the branch lines had been made on a scale and cost similar to what is now proposed, and if the present receipts per mile per week would be sufficient to pay a dividend on branch lines, costing say £3,000 or £4,000 per mile.

Irish Railways.—Traffic Returns for the Year 1866–1867. Table No. 2.—Trunk Lines.

Name of Railway	Miles Opened.	Total Cost per Mile, including Law and Works.	Total Receipts per Mile.	Working Expenses per £100 of Receipts.	Dividend on Capital.	Deducting 40 per Cent. for Working Expenses the Balance would equal 5 per Cent. on the following sum:	Deducting 40 per Cent. for Working, the balance would equal 4 per Cent. Dividend on the following sum:
Ulster	64½	£21,597	£1,922				£28,830
Dublin, Wicklow, and Wexford, including Kingstown Line ...	106½	20,740	1,563				23,445
Cork, Blackrock, and Passage ...	6½	25,732	1,541				23,115
Dublin and Belfast Junction ...	55½	19,645	1,384				20,760
Dublin and Drogheda ...	74½	16,064	1,258				18,870
Great Southern and Western ...	418½	14,515	1,219				18,285
Midland Great Western ...	246½	14,784	1,012				15,180
Great Northern and Western ...	82½	7,568	442				6,630

Table No. 3.—Minor Lines.

Cork and Bandon	20	17,015	1,113	nil.	13,356	16,695
Cork and Kinsale Junction ...	10¾	8,815	239	nil.	2,868	3,585
Banbridge Junction	6¾	8,194	399	nil.	4,788	5,985
Dublin and Meath	35½	13,404	388	nil.	4,656	5,820
Finn Valley	13¼	5,914	314	nil.	3,768	4,710
Limerick and Ennis	24	8,147	448	nil.	5,376	6,720
Carrickfergus and Larne ...	15½	7,805	332	nil.	3,984	4,980
Cork and Macroom	23¾	6,324	475	2%	5,700	7,125
Enniskillen and Bundoran ...	35½	11,931	223	nil.	2,676	3,345
Limerick, Castleconnell, and Killaloe	13	6,951	238	nil.	2,856	3,570
Limerick and Foynes	26¼	7,617	292	nil.	3,504	4,380
Rathkeale and Newcastle ...	10	7,304	205	nil.	2,460	3,075
West Cork	17½	18,114	241	nil.	2,892	3,615

An examination of the annexed Table No. 2 shows that the principal trunk lines are paying the shareholders a good dividend, while the receipts per mile per annum vary from £442 to £1,922.

Table No. 3 shows the cost per mile of the principal branch lines, the receipts per mile, and working expenses. This table also shows that although the receipts are not sufficient to pay a dividend on such a large capital,

averaging £10,000 per mile for branch lines, yet they are more than sufficient to pay all working expenses, and a good dividend, had they been made at a cost of about £3,000 per mile, and in some cases £6,000 per mile.

In the face of such reliable evidence, based principally on Government returns, why persist in wasting money on a class of railway wholly unsuited to the requirements of the agricultural districts of Ireland?

THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

THE quarterly meeting of this association was held on the 5th instant, at Butler House, Kilkenny. P. WATTERS, Esq., in the chair.

The following were elected as members:—Robert O'Brien, Rev. F. C. Hamilton, R. W. Banks, W. F. Skeuc, John H. Browne, John Cramsie, W. C. B. Wyse, Jas. Martin, M.D., F.R.C.S.I., Thomas Atkinson, John O'Neill.

The following gentlemen were promoted to fellowships:—Hon. B. E. B. Fitzpatrick, Lieut.-Col. Edwd. Cooper, Captain H. M. F. Langton, Rev. J. L. Darby, Eugene Shine, R. R. Brash, architect, Thomas Watson, N. Ennis, J. Digges, F. E. Coney, John Hill, J. E. Mayler, and W. R. Molloy.

A number of books, chiefly the publications of kindred societies, were presented to the library.

The Very Rev. the Dean of Ossory presented to the museum a round perforated stone, found in the cemetery of St. Canice's Cathedral, and which apparently had been used as a weight for a distaff.

An application was made by Mr. Justin McCarthy Brown, of Hobart Town, Tasmania, through Mr. Colles, Millmount, that the "Journal" of the association might be given as a free grant to the Tasmanian Library, Hobart Town. Complied with.

ST. FRANCIS' ABBEY.

The Rev. James Graves announced that the work of opening the windows of St. Francis' Abbey, Kilkenny (which had been so long closed up for the purpose of fitting the choir for use as a racket-court) had been now begun. Mr. Middleton, who had done them such good service in the previous operations at the abbey, was again kindly acting as superintendent and director of these works. He was sorry to say that the amount of subscriptions yet obtained or promised would not suffice for all that was required—if they were to properly secure the haunches of the tower arch; but he hoped that the vast improvement in the appearance of this ancient and picturesque structure, which would be effected by the opening of the choir windows, would generate such an interest in the proceedings amongst the townspeople, that additional subscriptions would come in. It would be a disgrace to Kilkenny if the beautiful old tower were suffered to fall from want of sufficient funds to render it secure.

THE RUINS AT MONASTERBOICE.

Mr. Graves proceeded to say that, in another direction, a very hopeful movement was being made with respect to the reparation and preservation of the ruins at Monasterboice, county of Louth; and those who were organizing the movement were anxious to carry it on in connection with their Association. He laid before the meeting some very beautiful photographs of the round tower and crosses at Monasterboice, together with drawings and plans made by J. Bell, jun., Esq., Malahide, county surveyor; and read the following statement from that gentleman:—

"The accompanying plans, &c., will give a fair idea of the existing state of the ruins. The churches (which are of an early date) have fallen into great dilapidation, and I would suggest only making good the present masonry, so as to prevent it from further decay. There is little of the stonework left, as it appears to have been removed away from the ground. The principal crosses adjoining the churches are in very good preservation, and I would merely propose to have the joints re-pointed, to preserve them from the weather, and also to have the ground cleared away from the base stones, as much of the beautiful carving is covered with grass and weeds. The bottom of the shaft of the cross next tower is much worn or cut away about 3 feet high from the base, as will appear in the photograph. I cannot account for this, unless it may have been chipped, and pieces taken away from time to time. I think it would be advisable to have a railing and base stone-course set round, so as to prevent any further injury. The design and carving of these crosses is very beautiful, I therefore forward photographs to form precedents of this rare work. The upper portion of the third cross, which I send in detail, is in very good preservation, and, as it now exists, is set in the

original base, and the shaft, broken in three pieces, is lying close to the cross. I propose to have the shaft doweled together, and restored on its original base, to carry the cross. The upper portion of the Round Tower has fallen, and what is still left appears to have a lean over towards the south. It will be necessary to take down some ten or fifteen feet of the existing work previous to restoring the top to its original height, which I understand was 110 feet from the base; and although the present outline is very picturesque, still for the future permanence of the tower it ought to have a cap similar to other structures of the same kind. The remainder of the Tower is built with a good description of flat-bedded rock, the joints of which are very close, and in many places great care has been taken to work the beds close. I would suggest, however, that the whole of the Tower should be pointed with cement. The south face is particularly open where the mortar has fallen out. The boundary wall is very much broken down in places. It will be re-built by the Board of Guardians, enclosing a larger space, so as to allow of a walk round the church-yard.

"JAMES BELL, F.R.I.A.I."

Mr. Graves also read some correspondence on the subject, showing how warm was the feeling in the district in favour of preserving their time-honoured monuments, and announcing that a subscription list had been opened, with the following names and sums:—Rev. Sir Cavendish Foster, Bart., £10; D. Dunlop, Esq., £10; Richard Montesquieu Bellew, Esq., £10; Right Hon. Chichester Fortescue, M.P., £10; M. O'Reilly Dease, Esq., M.P., £10; Michl. Branagan, Esq., £5. A long list of donations in aid of the work is expected to be soon forthcoming. Mr. Graves said he had, on the part of the Association, given every encouragement to persevere in so good a work, and had offered such suggestions as occurred to him. The great thing was to preserve the tower and crosses, and the ruins generally, as effectually as possible, without interfering with their ancient appearance.

The Rev. Dr. Martin asked if Mr. Graves had expressed approval of the proposition for rebuilding and capping the upper portion of the round tower, or had he counselled their endeavouring to preserve it in its present condition?

Mr. Graves said that he had counselled the preserving of the tower in its present state, if it was possible. But if the upper portion of the masonry was found, after careful inspection, to be in the state which Mr. Bell apprehended it was—so shaken and loose that it was liable to be blown down in any severe gale of wind—then the absolute necessity would arise for rebuilding this shaken and loose portion; and if thus the rebuilding of the upper portion could not be avoided, it would then be quite proper to place the cap upon it, such having been the original finish of all those structures, and as it would serve to protect it from going to ruin again. However, he would much prefer that the tower could be preserved exactly as it stands at present.

The members present gave a cordial approval to the operations at St. Francis' Abbey, and those proposed for Monasterboice.

THE KILKENNY MUNICIPAL RECORDS.

The Chairman laid before the Association a few more of the municipal records of the city of Kilkenny in his custody. The first document he would produce was a petition from the Corporation of the town of Gowran to the Lord Deputy, in the year 1608, the reign of James I. How this original document, connected with another municipal body, came to be amongst the Kilkenny Corporation archives, he could not tell; but, be this as it might, the memorial of Gowran complained of certain distresses made on some of the burgesses of that town, and described in the petition as "unlawful exactions" and other "barbarous customs." Gowran was in former days a corporate town, and until the Union returned two members to parliament. In the fourteenth century a strong castle was built there by James, third Earl of Ormonde, who made it his principal residence till 1391, when he purchased the Castle of Kilkenny. Henry V., in the second year of his reign, by charter granted the inhabitants certain cus-

toms for murage, &c., to enable them to build walls for its protection. Edward VI. granted the Portreeve, Burgesses and Commons an exemption from county cess, which was confirmed by Elizabeth in 1566; and it was probably to these privileges and exemptions the memorial refers, and upon these grounds that restitution of the distress was prayed for. David Archer, who made the distress, was at the time Constable of Gowran Castle. Sir Arthur Chichester, ancestor of the present Marquis of Donegall, was then Lord Deputy of Ireland, and shortly after was created Baronet of Belfast. His signature appears at foot of the memorial, he having referred it back for examination of the sheriff of the county or the next justice of the peace.

The next document which he would read was dated in September, 1622, and was an order of the Lord Lieutenant and Council, adjourning the Michaelmas Term to a later day, viz., to "*Crastino Animarum*" (which was the return day of writs in that Term, known as "The Morrow of All Souls"), on account of the unseasonableness of the weather and backwardness of the harvest. This would be considered a very strange proceeding at the present day; but of course the business at that time was trifling, and the postponement caused but little inconvenience; the great difficulty of travelling to Dublin in those days must have made the numbers attending Term very few. Michaelmas Term then began 23rd October; "The Morrow of All Souls" would postpone it to the 3rd November. This document bears the signatures of the Lord Deputy, Lord Falkland, with those of Chancellor Loftus, Lord Powerscourt, Sir Charles Coote, and other members of the Privy Council.

The next document was of the year 1628. It was not, like the others, an original, but was marked "*Copia Vera*"; and was an order of the Lord Lieutenant and Council for the raising of monies for the maintenance of the army, to be levied on the towns of Callan, Thomastown, Gowran, and Instioge.

The last document which he would lay before them on this occasion was perhaps the most interesting of all. It was a letter dated in 1643, from the Supreme Council of the Confederate Catholics, at the time sitting in Cashel, to the Mayor of Kilkenny. People might suppose that, because this body had usually sat in Kilkenny, the municipal archives of this city ought to throw much light on the acts of the Confederates; but, on reflection, they would see that the very fact of their sitting in Kilkenny would be a reason why very little about them was on record there, their own official records having been destroyed or having disappeared in some way since the Cromwellians had seized them and used them in the prosecution of members of the Council, in their "High Courts of Justice." However, there fortunately was existing amongst the municipal muniments this letter written to the Mayor from Cashel, where the Supreme Council then sat; and it was particularly interesting from the signatures appended to it of the most prominent men, not merely of the Confederation, but in the history of the period.

[The documents read by Mr. Watters will appear in *extenso* in the "Journal" of the Association.]

Rev. James Graves said it was unfortunate that in the opening of the letter of the Supreme Council, on its receipt, the wafer which had fastened it had been so torn as that the impression of the Confederates' seal upon it was defaced. The device was described as being a cross in the centre, with a crown on one side and a harp on the other; above a dove, and below a flaming heart; with the legend, "*Pro Deo, pro Rege, et Patria Hibernia unanimes.*" The cross in the centre was here clear enough, with a few letters of the legend; the rest was obliterated. They should feel deeply indebted to Mr. Watters for bringing under the Association's cognizance such valuable original documents.

Amongst the other papers brought before

the meeting were—"On the Exploration of the Cranoges," by Mr. G. H. Kinahan; and "On some Iron Tools and other Antiquities found in the Cranoge of Cornagall," by Mr. W. F. Wakeman.

The usual votes of thanks having been passed to donors and exhibitors, and specially to the Chairman, an adjournment took place to the first Wednesday in July.

MINOR NUISANCES.*

READERS who study the *Builder* attentively cannot fail to observe that we have a certain and very nearly constant number of complaints registered in our columns every year upon subjects which we may group together under the category of "Minor Nuisances." Our correspondence is, of course, extensive, and our correspondents are widely distributed; hence it may occur that we hear more about "crying evils" and "intolerable nuisances" than most of our contemporaries, who are not so directly concerned with the *domus* as we happen to be; and there can be no doubt but a great many circumstances connected with our houses and our homes, which might seem to the general public to be trifling affairs altogether, and quite beneath notice, do, in fact, go to make up a large portion of our happiness or our misery. A healthy and happy home is what we all seek after; but there are difficulties in the way, for the most part. Putting out of question for the moment such a case as a bad drain or a leaky gutter on the roof, which are not only major nuisances, but evils of the most fatal and pernicious character, is there nothing less with which we have to contend? Consider for a moment the annoyance caused by a sewing-machine, or a bad piano,† or a cornet-a-piston in the adjoining house; or the abominable shape of the chimney-pots over the way, which define the limits of our horizon; or the appearance of the paint next door; or, worse still, the sanitary condition of the neighbouring area, or the uncovered dustbin in the back yard! These and things of a like character are precisely what we have denominated them,—minor nuisances. They cannot be said to endanger life or to be very injurious to health, and our common law takes no note of them in any form whatsoever. Yet will any one assert that they are not, within their range and circumspection, very intolerable nuisances?

Another complaint reached us the other day of a more sentimental character; which, however, we have no hesitation in describing as an undoubtable grievance; and it was this. A respectable tradesman had had his front done up at considerable expense and with much taste, from the designs of a competent architect. A space, 1 ft. 6 in. or so in breadth of the frontage, was sacrificed in order to give effect to the Corinthian pillars and pilasters of Portland stone which formed part of the design and adornment of the basement story. A very pretty effect it would be, doubtless: that is not disputed. But, in the course of the same year, his next-door neighbour,—not an opponent in trade by any means, nor even a personal enemy,—knocked out his front also, and built up to the very boundary line (somewhat beyond, it is alleged) a shocking attempt at modern Gothic, as we are informed, in glaring red and black brick in alternate courses,—thus creating an effect of contrast and a "presumption of superiority" which vexes our poor Corinthian to the very soul! He actually writes that he has determined to remove from the locality for ever! Now, some people may feel inclined to smile at this fastidious gentleman; but, certainly, we do not. On the contrary, we most cordially and entirely sympathise with him. At the same time, we can only offer our sympathy, and nothing more; for it will never do to interfere with the time-

honoured principles of British liberty; and if he or anybody else interested in the subject choose to study the æsthetic principles which predominate in the different schools of politics in our day (this is, of course, a poor consolation), he will find the one complain as bitterly of the other on this very question as he does of his next-door neighbour!

Passing by questions of taste, however (in which, by the way, there has from time immemorial been a proverbial difference), we may notice the complaints we have mentioned which constantly reach us, and which may be classified under the head of noisy nuisances. "A Poor Artist," for example, cannot sleep on account of the screeching sound of a chimney-cowl—the property of a person on the opposite side of the street, whom he believes to be a butcher. Another correspondent, "An Invalid," complains in bitter terms of the noise made by certain iron shutters, which sound, he says, when they open or shut, "like the fearful grating of the mitrailleuse." From Liverpool we had last year a most portentous complaint from a retired merchant, who stated in plain terms that his next-door neighbours (either the Browns or the Joneses, we forget which) got up family concerts for his especial benefit, lasting till midnight, in which they employed trombones and ophicleides! And, finally, a gentleman who, we have every reason to believe, speaks the truth, wrote, not long ago, to say that since the Metropolitan Railway had invaded his villa at Camden Town, he had not only become deaf, but his hair had turned grey!

Now, what can we say to all this?—or rather, what can we do? The law, as we have said, will not only not interfere (unless in cases such as the trombones, where positive malice could be proved), but, on the contrary, has given permission by legislative enactment to the most gigantic of minor nuisances which our generation has seen! A railway train rushing at red-hot speed, and whistling the most fiendish shriek the world has ever heard—at midnight, within 10 ft. of one's bed-room window—is by many regarded as one of the greatest blessings of our modern legislation. And as to iron shutters, where is there such a protection to property from fire, and also from thieves? (It is steel shutters, by the way, which make the noise.) No doubt our friend the poor artist has a most just cause of complaint about the butcher's chimney-cowl; but then, if the poor butcher sleeps sounder in consequence of this squeaking—which means, of not being suffocated with smoke—who shall estimate the balance between good and evil?—that is, supposing the artist and the butcher to be alone concerned. But the real fact is, we are all concerned,—society is concerned,—in getting even such small nuisances as these abated; and in this particular instance we think the remedy might be simple enough. Why could not the butcher put a piece of suet on his chimney-cowl? And why could not the same principle be carried out? The "tromboner" might practise in the back garden as a mere question of civility; or, for that matter (since it is domestic music which he seeks to cultivate), he might try his hand on the flute. The fact is, we must all do our best in this overcrowded and artificial state of existence, particularly in great cities, to carry the golden rule into effect even upon small questions such as these. In still plainer terms, we should have more consideration, and exercise greater forbearance with each other in our most ordinary social relations.

The slamming of a door, the shutting of a window smartly, the noise of a rusty hinge, the want of a nail in the carpet, a picture hung awry, a bad picture, a disagreeable paper, a blunt carving-knife, cold plates, or a roast of beef overdone; these and a thousand other instances, which may easily be obtained from one's personal experience, or from the elaborate writings of modern authors, are, as we think, entitled to rank in the category of minor nuisances. Properly speaking, these

do not belong to our special subject. But there are one or two hints on construction which (although not the least new), coming from the *Builder*, may carry with them a certain weight, or at least a recommendation to all who love peace and quietness as much as we do ourselves. In the first place an architect is bound to consider, and, if possible, to provide against minor nuisances.

"Great wit to madness sure is near allied,
And thin partitions do the bounds divide."

This is a maxim which ought, literally speaking, to be constantly kept in mind. Secondly, the builder is bound to carry out the architect's intentions to the extent that there should neither be creaking doors, smoky chimneys, nor unworkable window-sashes. Finally, the public conscience must itself determine whether it be a proper thing to neglect towards society those small civilities in propriety, and above all in cleanliness, which no individual can be permitted to neglect; and here ends our little homily on minor nuisances.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THE next ordinary general meeting will be on Thursday evening next, the 20th inst.

Papers for the evening:—J. H. Owen, M.A., fellow, president, on "Sundries." Thomas Drew, A.R.H.A., fellow, hon. sec., on "Scaffolding in Brussels."

The ballot which was postponed at last meeting will take place.

THE ROYAL IRISH ACADEMY.

AT a meeting of the Academy on Monday evening (the Rev. Professor JELLET in the chair), a paper was read by Prof. Hennessy, F.R.S., "On the Floatation of Sand by the Incoming Tide at the mouth of a Tidal River." In the course of the paper Professor Hennessy stated that while on a tour along the western coast in the summer of 1868, he noticed, on approaching the strand at a river below the village of Newport, County Mayo, what appeared to be extensive streaks of scum floating on the surface of the water. On closer observation he perceived that what was apparently scum consisted of innumerable particles of sand, flat flakes of broken shells, and the other small *debris* which formed the surface of the gently-sloping shore of the river. The sand varied from the smallest size visible to the eye up to little pebbles nearly as broad and a little thicker than a fourpenny-piece. These particles had become perfectly dry and sensibly warm under the rays of the sun, and were gently uplifted by the calm, steadily rising water, and then floated as readily as chips or straws. This phenomenon, it was scarcely necessary to say, was due to molecular action, such as accompany the familiar experiment of floating needles on the surface of a basin of water. Although the specific gravity of the floating objects exceeds that of the fluid on which they rest, the principle of Archimedes holds good, because the displacement of liquid produced by the body is considerably greater than the volume of the body itself. In the case of a floating needle, the repulsion of the liquid from the polished surface of the metal presents a groove whose magnitude is obviously many times greater than the needle, but in the case of the floating pebbles this was not so magnified. The floatation of sand in a tidal estuary could only occur under favourable conditions—the stones must be very gently inclined, the air perfectly dry and warm. Under these circumstances thin cakes or sheets of sand may not only be uplifted by the water, but if the tide flows rapidly they may continue afloat sufficiently long to allow many of them to be drifted far from their original place up to the higher limit of the brackish water. In this way fragments of marine shells and exuviae might become mingled with those belonging to fresh water. This might sometimes hold good along a coast as well as on the shores of a tidal estuary. Geologists (so far as Professor Hennessy was aware) had not hitherto noticed

* From the *Builder*.

† One complainant is troubled with a neighbour whose musical and piano performances commence about eleven o'clock, p.m. (just when he retires to bed), and are continued vigorously for hours; while on Sundays the poor piano is worked incessantly. An appeal for merciful relief resulted in offended defiance.

the phenomenon in connection with the formation of stratified deposits by the agency of tides and rivers, although they have paid great attention to the influence of the molecular resistance of water to the sinking of very minute solid substances, with the view of explaining the wide surface over which matter held in suspension by water may be spread when ultimately deposited over the sea bottom.

Professors William King and Thomas H. Rowney, Ph.D., contributed a paper "On the Mineral Origin of the so-called Eozoon Canadense."

William Stokes, M.D., F.R.S., was elected a member of the Committee of Science.

Francis Edmund Macnaghten, Lieut.-Col. 8th Hussars, and Brian O'Looney, Esq., were elected members.

THE ROYAL DUBLIN SOCIETY.

THE next evening scientific meeting, for the session of 1870-71 (at which ladies are admissible, will be held on Monday evening next. Communication:—1. Howard Grubb, C.E., F.R.A.S., "On the Spectroscope, its Construction and Uses." Syllabus of Discourse—The Phenomena of Refraction and Dispersion, undulatory theory applied in explanation of same; Physical Investigations of Spectrum Analysis, and consideration of various lines of research in which the Spectroscope can be utilized; Principles and construction of the Spectroscope, and consideration of the best instrumental conditions in the various lines of research before enumerated; illustrated by experiments with electric and other lights.

THE TESTING OF RAILS.

At the meeting of the Institution of Civil Engineers, London, on the 4th inst., Mr. J. Price, C.E., read a paper "On the Testing of Rails, with a description of a Machine for the purpose."

The author remarked on the importance of determining beforehand the fitness of rails for their work, so as to avoid the necessity for constant replacements, which were attended with danger, inconvenience to the traffic, and unnecessary expenditure. There were certain causes for increased wear in rails which could be avoided; first, the difference in the forms of rail tops on lines worked as one system, the tires which ran on one portion not fitting the form of rail top on other parts; and, secondly, the super-elevation of the outer rail on curves not being properly attended to. To facilitate calculation in the latter case, the author had invented a rule which left out the term radius,—a chord being found, the versed sine of which was the correct super-elevation for any curve. This chord, for a speed of 40 miles per hour, was 64 ft. for the English gauge, and 67 ft. for the Irish gauge, a chain length (66 ft.) being sufficiently near for either. For any speed and any gauge the rule was—

Length of chord whose versed sine equalled super-elevation = $\frac{1}{2}$ velocity in feet per second $\times \sqrt{\text{gauge}}$.

The qualities sought in a rail were fourfold:—1. Strength, as a girder, to sustain a moving load; 2. Toughness, to resist sudden strain or impact; 3. Solidity, to resist separation under pressure; and 4. Hardness, to resist wear of the surface.

Strength depended on the form of the rail and on the quality of the iron. The flange or Vigoules rail stood first, as to form, for strength, and the double-headed came next; while the bridge-rail was a bad girder-form, and 30 per cent. of such rails broke before they were worn out. The proper interval for the sleepers was determined by the stiffness of the rail used. It was argued that the deflection of the rail, under its heaviest load, when in the centre between two sleepers, should equal the difference of the depression of each sleeper when the load was in that

position, and borne equally by two sleepers, and when it was directly over one sleeper. The author, having measured these deflections and depressions, found some rails too stiff for sleepers 3 ft. apart from centre to centre, and some too flexible; and he adopted intervals of 3 ft. 6 in. for a deep flange-rail weighing 76 lbs. to the yard. Rails should be tested for strength at a double interval, namely, such as would occur were every alternate sleeper left out.

Toughness might be measured by the amount of extension obtained in tearing asunder strips cut from the rail. The author had obtained from 8 to 9 per cent. of extension when the samples broke with a strain of 21 tons per square inch. Toughness, together with a hard head, could be obtained in a flange rail, but it was doubtful whether both qualities could co-exist in a double-headed rail. By solidity was meant freedom from particles of foreign matter and perfect welding. Hardness was of most consequence on inclines and at stations.

Existing modes of testing rails might be divided into: (1) Dead weight test, which was valueless as not being analogous to actual work; (2) Falling weight test, which was unfair, serviceable rails being rejected by it, as it went as far beyond the requirements of practice as the other fell short of it. Thus a rail might be bent, over a decayed or badly packed sleeper, by a train moving at the rate of 40 miles per hour—a velocity only $\frac{1}{20}$ th part as great as that with which it was struck by a weight falling only 4 ft.; (3) The examination of fracture to ascertain structure was a matter of too great nicety for general use.

The machine employed by the author for testing rails subjected them to wear analogous to actual use. It consisted of a pair of metal rollers, 5 ft. in diameter, 16 in. wide, and weighing 2½ tons each, supporting a circular frame or beam weighing 6½ tons, this frame being connected by radii with a centre boss, through which passed a vertical axle. The circle traversed was 40 ft. in diameter. One roller bore with 6 tons and the other with 5 tons pressure. Motion was communicated either by shafting and gearing underneath, or by the direct action of a steam engine. The speed at which the machine could be worked was about 20 miles per hour, but it was generally run at a speed of 13 or 14 miles per hour. The rollers were caused to revolve over a ring or polygon of the rails to be tested until the rails were broken or worn out, and they bore with a weight equal to that of the driving wheel of a locomotive. The rule of "speed-tons," demonstrated by Mr. Price Williams, M. Inst. C.E., was adopted as a basis; but it was found that the number of "speed-tons" required to wear out rails was greatly diminished by the weights being concentrated on fewer points. A comparison with a standard was however obtained. The bending of the rail, to form a circle, if done at a dull red heat, did not injure the texture of the iron, but a polygonal arrangement was preferred, to equalise the wear on the rollers. In testing iron rails for strength, some gaps were left in the circle, and the rails laid across unsupported for an interval of 6 feet. It was then found that flange rails weighing 76 lbs. to the yard did not take any set until the flanges were drilled in the centre with two ¾-in. holes, and the material cut away from those holes to the edges; and that they did not break until the flanges were cut away so that only ¼-inch of iron was left in the centre, showing a good margin of strength. The results of testing the wearing properties of eight samples of rails were given in a table, and six pieces of worn rails were exhibited.

Out of 427 Bessemer steel rails, of flange pattern, tested for strength, with an interval of 6 ft. between the supports, four only broke. The author recommended all steel rails to be tested for strength, as a few brittle ones brought discredit on all, by causing accidents. They could be tested, without stopping the machine, at the rate of from 4 to 5 tons of rails per hour at a single opening, of which there might be three or four in the circle.

A machine of full power, with four rollers

pressing with 7 tons each upon the rails, would, if working at a speed of 40 miles per hour, give per day of 22 hours, an effect of 41,395,200 speed tons. A few days of such work would determine the qualities of even very good rails.

BOOKS RECEIVED.

Irish Railways and the Irish Board of Public Works; being a Review of some of the Unused Powers of the Loan Commissioners, with Suggestions for their Practical Employment. Dublin: Hodges, Foster, and Co.

THE above is the title of a pamphlet just issued from the pen of Mr. B. L. Fearnley, Secretary to the Newry and Armagh Railway Company, a gentleman of large experience in railway matters. The object aimed at by the author is to bring to notice the powers now vested in the Treasury by the 1 and 2 Wm. IV., c. 33, to aid in completing—along with other public works—the unfinished railways of Ireland; and also that the Irish Loan Commissioners have in hand, available as a nucleus for such purposes, the sum of £551,752 6s. 7d., of which apparently no use is being made! We heartily agree with Mr. Fearnley in the views he has put forward in this pamphlet. The question is indeed one which calls for immediate parliamentary action, but this we fear will not be conceded, the Government having recently declared that it is not prepared to bring forward any measure on the subject this session. We shall, however, be glad to give Mr. Fearnley the benefit of our influence and co-operation in having the powers vested in the Loan Commissioners properly and promptly exercised for the purposes originally granted. We shall just give one extract, in which our author sums up his argument:—"While a work of such national urgency remains to be accomplished, it points to a somewhat wider field for the exercise of the powers conferred and the duties imposed by the legislative enactments referred to in the preceding remarks, the consideration of which is commended to all who are interested in the industrial progress of Ireland, and who desire her participation in those advantages to which, as an integral portion of the empire, she is indisputably entitled. It is now thirty-five years since the obligation of bringing the public credit to bear upon the construction of railways in Ireland was affirmed by an Imperial Legislature, but that Imperial Legislature is still confronted by the fact, that the pledge then given remains unredeemed. What have our Irish representatives to say on this subject? Are there none among them who will gird themselves to the task of obtaining its tardy fulfilment? Should the demands upon the Consolidated Fund interfere with a sufficient credit being placed at the disposal of the Commissioners, though some convincing evidence would be required to prove this, the precedent adopted towards the Intercolonial Railway, which, it will be remembered, received an imperial guarantee of 4 per cent. upon an outlay of £3,000,000, can be applied with equal facility to the unfinished railway system of Ireland as well as other reproductive public works. Few will be bold enough to place the claims of the Canadian Government to an imperial guarantee upon the same footing as those of the Irish people, so long at least as the latter have to bear their proportion of the public debt, while the American colonies contribute nothing whatever to sustain the national burdens. Such a guarantee given, for even twenty years, would soon command the requisite capital without calling upon the Treasury to advance a single shilling; but our superb Finance will fling its millions into the lap of some foreign power—already, perhaps, our secret foe—and yet withhold the cheap support of the national credit from those public works to which the national wealth is so largely indebted." The pamphlet has had already a large circulation—not larger than the importance of the subject deserves.

THE NEW ROSS BRIDGE.

THE following is an abstract of a paper read by Mr. Henry N. Maynard, C.E., before the Institution of Civil Engineers, London, on the 28th ult. :—

The author stated that this bridge is built over the river Barrow, on the site of an old wooden structure which was swept away by ice, and where the river is navigable for vessels of 2,000 tons burthen, and is 650 ft. wide and 38 ft. deep at high water of spring tides, there being a tidal range of 25 ft. The bed of the river is chiefly sandy clay, or marl, with thin layers of *debris*, the marl varying in hardness, and overlaying a bed of about 7 ft. of gravel under which is rock. The timber bridge was composed of mere trestles, resting on the mud, at intervals of 25 ft., and covered with joists and planking, having a portcullis of 30 ft. opening, and it was said to have cost about 10s. per square foot of surface.

The new bridge is of iron, designed by Mr. James B. Farrell, C.E., Wexford, and Mr. P. Burchaell (County Surveyor), Kilkenny. It consists of four spans of fixed lattice girders, each 88 ft. in the clear, and of a swing bridge having two openings of 50 ft. each. The roadway is 32 ft. wide, comprising two footways each of 5 ft. 6 in., and a carriage-way of 21 ft. The road is carried between the lattice girders on cross girders and buckled plates, these plates being covered with 6 in. of Portland cement concrete, then a layer of asphalt 2 in. thick, upon which was laid metalling 4 in. thick, except over the swing spans, where a wooden floor, cambered like a ship's deck, was laid.

The piers are pairs of cast iron cylinders sunk to the rock, 9 ft. in diameter at the base and 7 ft. in diameter at the top, having one taper length below low water to connect them, and filled with Portland cement concrete. The central pier, under the swing span, was formed of a cluster of five cylinders braced together, upon which a strong circular girder formed a roller path for the bridge to turn upon, the turning being performed by chain and wheel gear.

The abutments of the bridge were to have been built of masonry, but at the author's suggestion iron was substituted, thereby saving much time and money. These abutments are composed of three cylinders, each 7 ft. in diameter, and of cast iron plates filling the spaces between them and forming also the wings. An ornamental stone parapet was built on the top of the wing plates, at the back of which, as well as inside the cylinders, concrete was deposited.

Considerable difficulty was encountered at first in sinking the cylinders. It was hoped that sufficient clay would be found to hold back the water. After building up a cylinder 45 ft. high, it was lowered to the bed of the river and found to reach sufficiently above the water level for the attachment of another length. The interior was then excavated by the sand pump, until the cylinder had sunk 14 ft., when an additional length was added, and weighted as before. After remaining a few hours this suddenly sank 13 ft., carrying away some of the braces of the staging, which were not arranged for so great a movement. When the damage to the stage was made good, the water was pumped out of the cylinder, but the inside could not be kept dry, for as soon as the earth at the bottom was disturbed, the men were driven out by water coming up through it. Compressed air apparatus was then used, and the earth excavated to the lower edge of the cylinder. On the pressure of the air being removed the cylinder immediately went down another 13 ft., and on examination there was found to be a depth of 20 ft. of earth inside. This earth was taken out until good hard gravel was met with, into which the cylinder had penetrated 5 ft., and as this gravel immediately overlay the rock, it was deemed a sufficiently good foundation. Various means were tried to pump out the earth from the inside of the cylinders, but it was too tenacious to be removed satisfactorily in that way. Mr. Milroy's exca-

vating apparatus was also used, and acted very well, but it was eventually found necessary to complete the work by compressed air apparatus. All the cylinders in the bed of the river were subject to descend suddenly from 6 ft. to 13 ft., when they reached a certain stratum, and after the first was sunk suitable arrangements were made in the staging to meet this. The time occupied in sinking a pair of cylinders to the proper depth was about ten weeks. On one pair operations were commenced on the 3rd of December, and the excavation was completed on the 5th February, by means of the sand pump and Mr. Milroy's machine. The compressed air apparatus was then fitted on, and the cost of the whole was about £250 for labour, exclusive of the use of staging and tools.

Owing to the difficulty in fixing the piers in this river, the author was led to design an open braced pier for similar cases, and stated that if it had been adopted here a saving would have been effected of £8,000, and the work would have been executed in less time. This pier would consist of a cluster of four braced tubes of cast iron connected together as one, with solid wrought iron screw piles passing through them; the whole braced structure, with its screws, being lowered through the water and the screws driven down inside the tubes, sliding through the latter in a telescopic manner, until they reached the hard bottom of gravel, the bracing forming a guide and stage for the screwing down, and afterwards becoming a permanent portion of the structure.

The ironwork in the piers and abutments weighed 1,182 tons, and in the superstructure 650 tons. There were besides of other materials, masonry 10,656 cubic ft., concrete 2,000 yards, timber 3,000 cubic ft., and timber in dolphins 9,750 cubic ft.

The work was executed by the Messrs. Kennard Brothers, of Crumlin, under the author's superintendence, and was commenced in April, 1868, the roadway being opened for traffic in July, 1869. The total cost was £36,250, or about £2 5s. per square foot of surface. The cost of fixing, including the staging, was £7 9s. per ton of iron.

THE BARROW DRAINAGE.

THE proprietors of land adjacent to the River Barrow have been long anxious to adopt measures for the improvement of some 50,000 acres of land lying submerged during the greater part of the year. They have applied to Government for assistance in carrying out this important work, but, alas! it has been refused for the present. The following documents will speak for themselves. The first is a reply to a memorial presented to the Chief Secretary for Ireland by the Duke of Leinster and the Marquis of Drogheda:—

Irish Office, Great Queen-street, S.W.,
March 10, 1871.

MY DEAR LORD,—With reference to the memorial from the proprietors of lands on the River Barrow, which was placed in my hands by your Grace and Lord Drogheda, and to the statements made by the deputation which I had the pleasure of receiving when in Ireland, I beg to state that I have made inquiry into the matter, and I forward for the information of the memorialists a copy of the report which I have received from the Commissioners of Public Works. I regret that, under the circumstances pointed out in that report, *I cannot consider that the drainage of the district of the River Barrow is an object requiring the aid of the Government*, either by a grant of public money or (in the present state of the question) the appointment of an engineer to report upon the best mode of proceeding.—Believe me, my dear lord, yours very faithfully,

“HARTINGTON.”

The second is the report of the Commissioners of Public Works referred to above:—

“The district drained by the River Barrow is, as represented by the memorialists, one of considerable magnitude and importance, its rain catchment basin embracing an area of probably not less than 40,000 acres, while the lands subject to inundation are estimated to extend to about 50,000 acres.

“Not only are these inundated lands rendered com-

paratively valueless by the length of time to which they are ordinarily subject to being under water, but the surrounding country is also, there can be no doubt, to a considerable extent very injuriously affected, both as regards its sanitary and agricultural condition, by the cold wet vapours to which the flood waters, more especially in receding, give rise.

“The lower extremity, or outfall, of the district may be said to be at or near Athy.

“It has been found, as a general rule, that as the area or extent of districts increase, or rather the volume of water to be dealt with, so does the cost per acre, having reference to the flooded and injured lands also increase, and, consequently, the remunerative returns diminish.

“The Barrow district forms no exception to this rule. There can be no doubt that its several tributaries could be opened up and the lands bordering on them relieved, each separately, at a cost per acre considerably less than the district, as a whole, could be; but the effect of these several operations—although that of each, taken by itself, might not appear to be of much importance—would collectively, in all probability, materially add to the injurious flooding to which the lands on the main river are now subject, while it does not admit of a doubt that the cost of giving vent to the waters, so as to relieve these latter lands—even without having to provide for the additional discharge referred to would be altogether incommensurate with the value of the benefit derived. Under these circumstances, therefore, and in order that each and every part of the injured lands should bear its due proportion, according to the actual benefit received, of the cost of obtaining relief, it appears most desirable that the district should be taken up and operated on as a whole. For this reason the Board of Works intend to defer granting a provisional order for one of the tributaries, which the proprietors interested therein had desired to deal with as a separate measure, with a view to giving the general body of proprietors time to consider the advisability of proceeding with the whole district as one complete undertaking. The board have suggested to some of the most influential proprietors that, to enable them to form a satisfactory opinion in regard to the propriety of adopting such a course, it was necessary that a well-matured design for the works necessary for the entire district, together with a reliable estimate of the cost, should be obtained from a competent engineer, and, at the same time, that a complete survey and valuation of the flooded lands, showing their present and proposed improved condition and value, should be prepared. No such data exist at the present time, and until they are supplied it would be impossible for the proprietors to judge of how far the work would be remunerative to them and could advantageously be undertaken by them; neither without them can there be any grounds on which any appeal for Government aid could with propriety be put forward. It is submitted, therefore, that it should be suggested to memorialists that the proprietors should unite in adopting the course and taking the steps indicated as an absolutely necessary preliminary to any further consideration of the subject. With respect to the desire expressed that the board might be requested to appoint an engineer to inquire into the several projects for the work, the board do not feel that they can with propriety undertake this duty, neither do they think that, in the present state of the question and known insufficiency of the data, could any practical advantage arise therefrom. In regard to the case of the Shannon, which is cited in support of the claims of proprietors for a grant in aid, it is to be observed that the cases are in no degree parallel. In that of the Shannon the sole grounds on which aid is proposed to be given are that the works maintained for the purposes of the navigation are an obstacle to the carrying out of the works necessary for the relief of the lands by the proprietors at their own and the lesser cost which would be called for if such navigation did not exist. No such circumstances apply to the Barrow.

(Signed)

“J. E. M'KERRIE.

“4th March, 1871.”

COINAGE OF 1870.—The annual coinage account prepared at the Royal Mint shows for 1870 only 1,822,680 sovereigns and 931,408 half sovereigns, of the value together of £2,313,384, which is but half the annual average coinage of gold. An unusually large coinage of gold, however, had been completed in August, 1869, and there has been a large coinage of gold in the present year. The silver coinage of the year 1870 was of the value of £336,798, and exceeded the average. It comprised 1,976,040 florins, 1,908,720 shillings, 1,654,440 sixpences, 4,158 fourpences (Maundy money), 1,398,408 threepences, 4,752 twopences, and 7,920 pence, the last two being Maundy money. The bronze coinage of the year consisted of 5,698,560 pence and 4,300,000 halfpence. The total value is £2,682,887.

LECTURES ON ARCHITECTURE.

(Continued from page 93.)

In my last lecture I dwelt mainly on the general principles which must of necessity govern the practice of architecture. It was necessary to glance at its past history for their right appreciation, and to inquire how far we are justified in referring to the past as our guide to the future. The main interest to us of these inquiries lies in the influence they may have on the work of the day, and the prospect of those future glories of architecture of which we may be permitted to dream. Here this inquiry may be pushed somewhat further. The tendencies of modern thought, as affecting architecture, may be considered. The influence of its past history must also claim our attention, and the great question of its future development is one that cannot be passed over. In dwelling on the essential principles of true architecture we found they might be classified, perhaps somewhat roughly, under the heads of Permanency, Convenience, and Beauty. These heads may be sub-divided, but they will, I think, be found to include all that is really essential. Vitruvius specifies seven qualities on which the Greeks insisted,—solidity, convenience, order, disposition, proportion, decorum, economy,—but these will be found to range themselves under the three heads above referred to.

The facilities which modern science has afforded for observation and research have introduced a spirit of eclecticism in art which is responsible for not a few extravagances. Thus we may see huddled together modern buildings which are almost literal copies of old structures, and which seem to relinquish as a thing to be ashamed of all claim to be the work of our own day. And yet we have no reason to be thus disdainful of our epoch. It seems but the other day that we were told that, supposing some natural catastrophe to destroy the dwellers in India, the only remains of English rule would be some empty provision-tins and champagne-bottles. Now, besides works of irrigation, a complete system of railways is nearly finished, and will soon extend from one end of India to the other. At home the rapidity with which the results of experimental science have been applied to the comfort of the people has been little short of marvellous. In 1829 the Rocket engine of Robert Stephenson won its prize in the competition. Now we have in the United Kingdom more than 15,000 miles of railway, with 8,000 locomotives, and upwards of 600 millions sterling invested in railway property. Abroad a similar activity has prevailed. Every country, including even Turkey and Egypt, has now its railways, roads, and other engineering works. They have been carried over heights till lately inaccessible save to the chamois, and the last triumph of piercing the mighty Alps is all but consummated. It is less than thirty years since the *Great Western* first crossed the Atlantic, and now steam-vessels are reckoned by hundreds. Engineering has been as active afloat as on shore, and it is not many months since its last great nautical triumph was celebrated by the great ones of the world at the opening of the Suez Canal, uniting two seas. When we consider the geological theories of the world's antiquity, giving millions of years as a permissible theory, it is impossible not to be struck with amazement, and even awe, as we reckon up the achievements of only thirty or forty years,—all leading in one direction,—all adding to the power of man over matter,—all securing for the many advantages which were till lately the exclusive heritage of the few. If we are tempted, as we often may be, to grieve over the apparent decay of real art-feeling, and the exaggerated utilitarianism now in fashion, it is desirable to bear in mind, on the other hand, the real progress that has been effected by science, in parallel, but not necessarily divergent lines. It is true that no such progress has been made in art; and for this the earnest devotion of the intellect to what have been deemed more pressing exigencies may perhaps be one reason. But

there can be no reason why architecture, at any rate, should suffer, save, perhaps, for a time, from the abundance of the means placed at her disposal. The great works I have referred to have almost all included structures for which architecture has a special vocation. It is indeed to be regretted that too many of them have been carried out without regard to this circumstance, and that, in consequence, some of the great triumphs of science are destitute of the charms which our art might have bestowed upon them. At the same time, it is only right to say that architects might find much to learn from the works of our great engineers as to those qualities of truth, solidity, and fitness, with often a resulting beauty, which are required in a perfect work of art. London Bridge has always appeared to me a remarkable example of the successful application of these principles; and we owe this fine work (at present happily undisfigured by additions) to an engineer, the late Mr. George Rennie. Old London Bridge, with its narrow pointed arches and roadway encumbered with shops, had doubtless a picturesque effect, but even in these days of revived Mediævalism I suppose no one would suggest its restoration. It had served its time. When it was built it was, no doubt, the best bridge that could be done, but the modern engineer could have no scruple in removing it, for he knows he can do better. If you will look at the diagram I have prepared of this bridge, you will see that there is not in the design a single superfluous feature. The arches are as large as was necessary, the abutments are plain rusticated piers, the cutwaters are placed where they are required, and the whole is crowned by a plain parapet for the protection of foot-passengers. But for the section of a few mouldings which show a Grecian contour, one might say that the designer had never referred to any past style. The necessary construction of massive stones is slightly accentuated by means of rustics. It would be difficult to add or subtract any feature without injury to the whole, and we thus have a work which owes its success to its having been designed on true scientific principles.

Railways, steam navigation, and telegraphs having occupied, as they have done, the attention of all classes in recent times, the engineer has somewhat encroached on the architect, and this has been very much due to the course taken by the latter. He has been too often looking backwards while the others were looking forwards. He has been dreaming of an impossible recurrence to by-gone modes of thought, while the engineer has pressed boldly onwards to conquer the future. The consequence has been, that the progress of their day has found an illustrator in the engineer, rather than in the architect. But this is, as I have said, only an occasion for temporary anxiety as regards the interest of our art. Architecture has ever based its greatest successes on true and convenient construction; she has always known how to snatch a new grace from external difficulties, and it can only be a momentary want of appreciation of facts that has allowed one leaf of her chaplet to fall to the ground. Now that the first necessities of engineering have been satisfied, there is an evident tendency to turn to art for its aid and counsel; and when we consider the necessarily large scale of the works of an engineer, we shall see what scope for grand architectural effect is afforded by them. As regards the employment of iron, and a scientific construction therein, there will, however, be found great difficulties for the artist. Considerations of permanency and solidity must govern his work. On the other hand, exact calculations of necessary strength are the rule of the engineer. The work of the architect must not only be strong enough; it must also possess such an evident reserve of strength as must satisfy the unlearned; and it must display that reserve which is the result of obvious abundance. So much has been said and expected of iron architecture, that it is worth while to consider this question. Without any disparagement of the Crystal Palace at

Sydenham, it cannot be rightly termed a work of architecture. An ephemeral character is stamped upon it, depriving it of all claims to permanence. It does not exclude cold, heat, or rain. It cannot, therefore, be said to be convenient; nor is it beautiful, except as a conservatory, although it is doubtless the finest greenhouse in the world. The construction arouses in us a certain surprise and admiration; but this very circumstance tends to rob us of the confidence which should be felt at once as to the sufficiency of a work of architecture. Beautiful, therefore, as this important specimen of iron construction may be in a certain sense, it cannot rank as a work of architecture, nor can it settle for us the architecture of the future. It is, however, important for the architect to bear in mind that the resources of his art are capable of almost infinite application; and I have placed on the table a small model, which explains some suggestions by my late father, which he offered to the directors before the erection of the present building. He proposed, by the balance of the chief masses, and by the introduction of domes at the intersection of the glass roofs, to improve the sky-line, and to confer on the work a better architectural character than it now possesses. The directors approved the design, but declined to adopt it, because of the additional expense, which, if I recollect rightly, was about £20,000. They then proceeded to lay out about a million and a quarter in the building and gardens. Thus the opportunity was lost of adding immensely, and at small comparative cost, to the grandeur and attractiveness of the building, both externally and internally, as regarded its architecture.

The Crystal Palace, therefore, is not likely to prove the introduction of a new style of architecture. Tried by the principles of permanence, convenience, and beauty, it must be deemed wanting, and must be content with a humbler part. The large iron roofs so common nowadays must be tested by similar considerations if they claim to rank as works of art. The contrast between them and our finest old wooden roofs is very great. Compared with the roof of Westminster Hall, for example, what can be said of the iron roofs of our railway stations? It is a circumstance suggestive of the recent origin of these constructions and the rise of modern engineering, that I have been unable to find an example of a large iron roof which I could bring before you without infringing the prohibition of criticising the work of living persons. I have therefore asked my brother to draw me such a roof as he would think it right as an engineer to propose if called upon to do so. He has adopted without hesitation a span of 200 feet. By its side I have placed a diagram of the roof of Westminster Hall.

I am, of course, aware that a strict comparison is not fair; for Westminster Hall was built as a part of a royal palace, and our stations are erected for strictly utilitarian purposes. I do not therefore press the contrast as to ornamental details, but will content myself with pointing out the evident reserve of strength in the one case, and the obvious meanness of calculation in the other. In so doing I am only speaking æsthetically of the apparent qualities of the two roofs, for it might possibly appear from scientific calculations that such appearances are, in truth, fallacious, and that the iron roof is the more stable of the two. It is only important for our present purpose to bear in mind that architecture requires repose, effects of light and shade, and an evident reserve of strength as well as beauty; all which qualities are, as a rule, wanting in our recent iron constructions. Moreover, the scientific peculiarities of iron place a practical difficulty in the way of the architect. Expanding and contracting with changes of temperature, iron is never at rest; and but for precautions taken by means of rollers or otherwise, it has ever a tendency to destroy the building in which it is used, and like the spreading oak described by the poet, to "draw danger down upon the

head it promised to defend." But without indulging in visionary hopes of a new iron architecture, we must remember that the architect of to-day, having this new element of power in his hands, has placed upon him a corresponding responsibility. He is able to do without an effort what was difficult, if not impossible, before. While this adds, however, in one way to his power, it often involves him in new difficulties. He is, for example, frequently called on to deprive his work of its natural foundations by carrying the heavy superstructure of iron beams, for the sake of obtaining the greatest amount of convenience, or light and air. This is, no doubt, the cause of the somewhat threatening construction of this subterranean apartment. It must be the duty of the architect not to reject the assistance of iron, but to endeavour so to master the principles which limit its artistic application, as to retain the aid of a good servant, while resisting its undue pretensions as those of a bad master. Now that mankind have discovered the facilities which the use of iron has conferred upon them, it is idle to suppose that they will long rest satisfied with any form of a useful art, such as architecture, which distrusts and neglects it. Difficulties such as I have touched upon doubtless exist; but for the architect the first thing to do is to understand, the second to conquer them. Architecture, with its requirements of covering internal spaces with domes and vaults, has everything to gain from the scientific progress of engineering. The architect and the engineer, indeed, ought hardly to be considered members of different professions. In consequence of a separation to be deplored, opportunities have been lost for the display of architecture on a scale grander than has ever been seen, and works have been erected with a disregard of artistic propriety which may almost be termed cynical. I am anxious to do justice to the works of engineers where they have been successful as works of art. There are, however, some examples which we may try as Christians to forgive, but which as artists we can never forget.

We may now briefly consider some of the types of building which we have inherited from our forefathers, and which have influenced us so powerfully in our work of to-day. With our warm admiration of the noble remains of the piety and artistic power of Medieval times, it is almost a difficulty to us to believe that but a short time back they were regarded at best only with antiquarian curiosity, and the very word "Gothic" was a term of reproach. The remarkable movement which has rescued our churches from decay and churchwardens, and has covered the country with restorations, has laid artists under a lasting obligation, though it may have introduced dangers of its own. It is certainly remarkable that it has been reserved for a time impatient beyond precedent of prescription and ancient rules, to stand forth in history as the age of architectural restoration. Conservatism in architecture has seemed a wonder in an age of active democracy. We are apt to forget the modern origin of this conservative feeling. In the Middle Ages it was unknown. In any English cathedral may be seen the work of different times, each with its peculiar details and design, which enable the educated observer at once to classify them. There was then no hesitation in pulling down a church in order to replace it by another built in the fashion of the day. In the walls of our ancient churches elaborate fragments of the earlier work are found built in without regard to their original position, and used as mere building materials. In other cases, as at Winchester Cathedral, the original building was actually cased and hidden from view by the application of the forms thought at the time to be the best, because the newest. It is the same through all the varieties of the style,—Norman, Early English, and Decorated,—all gave way each in turn to its successor, till the last was merged in the Transitional and the Perpendicular of the fifteenth and sixteenth centuries. From that time to

the recent revival, other forms of architecture have been in the ascendant. It is fortunate, indeed, that in this interval our predecessors have, as a general rule, only subjected our cathedrals to neglect, and have not imitated true Medieval principles, by pulling them down in order to rebuild them in the fashion of their day—the fashion, perchance, of the Georgian era. But, however much we may rejoice to have been spared this misfortune, the contrast between the hesitating timidity of to-day and the unquestioning boldness of the Medieval architects, is both instructive and suggestive as to the state of our art. Every change in style was based on common sense, and much of the history of all times may receive elucidation from their architectural remains. Thus, in the thick walls of the Norman or Saxon castles, we see evidence of the lawlessness of their day. Security being paramount to all other considerations, we are not surprised at the smallness or inconvenience of the domestic accommodation when contrasted with the arrangements required for defence. We may, however, well appreciate the manner in which the necessities of the latter are made to add a charm to the architectural effect. As society became more settled, castles ceased to be built. The Church arose as the predominant power. Cathedrals, churches, abbeys, and religious houses were scattered throughout the land. The heavy forms of the Norman work were found not to be sufficiently plastic, and as convenience required their abandonment, they were set aside as a matter of course. Glass became less scarce, and windows were therefore enlarged. The invention of stained glass pushed this enlargement further and further, till churches seem to have been designed specially for its display; as, for example, some of the finest French cathedrals with their exaggerated clearstories. Increased skill in construction led to the employment of larger arches, and the pointed arch took undisputed possession of Gothic architecture. Masonry advanced step by step to such daring constructions as the vault of King's College Chapel at Cambridge, or the spire of Strasburg Cathedral. The advance in domestic buildings was not less marked, though we have necessarily fewer examples remaining to us than of the more solid public edifices. Such ruins as Fountains, Rievaulx, Kirkstall, and others, indicate the power of the Church, and enable us to estimate the immense influence it must have had on architecture, and, indeed, on all the relations of public and private life. The advancing power of the Crown may be traced in such buildings as Hampton Court Palace, unwillingly surrendered by Wolsey to his sovereign, while the collegiate buildings at Oxford and Cambridge record the increasing importance attached to education, as well as the improved order of the time, which rendered such establishments possible and safe. Time would fail me to carry out this argument in all its details, but the above indications may, perhaps, suffice to show how convenience has guided architecture, rejecting time-honoured forms whenever they clashed with its dictates, and leaving as a result its history in stone of each social or artistic change. In carrying out the details of its work Medieval architecture always followed similar principles. Each material was employed for the purpose and in the position for which it was most fitted. Common sense presided over the works of the mason, the smith, the carpenter, the glazier, with a result which, while sacrificing no essential, has given us monuments of art which must be the admiration of this and probably all future ages. With the revival of classical literature, and the Reformation, came the Renaissance; and during the transition we find architecture influenced, as usual, by the external circumstances of the day. The stately Elizabethan homes of the gentry spoke of new habits and new wants. The home of an English gentleman was no longer to be of necessity his castle. The old feudal relations of lord and vassal were exchanged for the more modern and kindly intercourse of landlord and tenant,

which, in England at least, has had inherent strength enough to survive the revolutions that elsewhere have levelled all before them. In the houses of the Elizabethan and Jacobean period are to be found all that was then considered essential to comfort and convenience, with abundance of light, and no lack of stateliness. The architecture is often a strange medley of Gothic and classical forms, combined often with bad taste, but almost always with a certain picturesqueness. It is also peculiarly English, and has perhaps not always had justice done to it. Some of the best specimens of this transitional style may be seen at Hardwick Hall, Wollaton House, Burleigh, and the original portions of Crewe Hall, in Cheshire. With details refined and purified, the architecture of this time might present much for our study and consideration. It was not, however, destined to a long duration. Leaning for its details now on the Gothic of the past, now on the revived classic forms in which enthusiasts thought they had found the style of the future, it finally succumbed to the Renaissance of Inigo Jones and Sir Christopher Wren. At this distance it is possible for us to look back fondly on the middle ages. . . . Few can venture to say what is to be the rule for the future. One thing, however, must be remembered, namely, that though we may copy the forms of the past, we cannot live the lives and think the thoughts of those that are gone. There is a gulf between us which no imitative architecture can bridge. We may despise the nineteenth century, but we cannot help belonging to it. It is for the true artist to seek perfection with his eyes fixed on the future rather than on the past.

(To be continued.)

NEW PULPIT, MOLYNEUX ASYLUM CHURCH.

A new pulpit has been placed in the Molyneux Asylum Church, Upper Leeson-street. It is constructed of Caen stone and marble, and is of an ornamental character. The lower part is composed of a deeply-splayed and moulded stone base, supporting a massive pillar, round which stand four detached polished grey marble shafts, the whole being surmounted by carved stone caps, finishing at the level of the floor with a deeply-moulded red marble abacus. Above the floor level is a plinth course, with sunk diaper work, and supporting pillars of various-coloured polished marbles, with carved stone caps, from which rise a series of pointed arches. The spaces between these arches are relieved by carving and marble inlay, and the whole is finished by a richly-carved stone cornice, the upper mouldings of which are of polished grey marble. The ascent is from the north side, by stone steps, leading up from the chancel. It is worthy of remark that all the marbles used are Irish, obtained from the Cork, Connemara, Tullamore and Kilkenny quarries. They have been selected with great care and taste by the contractor, Mr. C. W. Harrison, of 178, Great Brunswick-street, who has successfully carried out the entire work from the designs by Mr. J. R. Carroll, F.R.I.A.I., the architect of the church.

NARROW-GAUGE RAILWAYS.—The narrow-gauge railroad is increasing in favour both in this country and in Europe. A road with a three-foot gauge is in operation between Akron and Massillon, in Ohio. Another road of this kind is to be built between Piqua and Celina, in the same State, a company having been organised for the purpose, with a capital of 400,000 dols. The right of way is to be fifteen feet instead of forty, the usual width, and the locomotives are to weigh five tons instead of thirty, and to be capable of drawing from ten to twenty loaded freight cars, each of two and a-half tons capacity. A passenger car on this road will hold twenty people. The projectors of the Buffalo and Springfield road are also thinking of adopting the narrow-gauge railroad. The Festiniog Railway, in Wales, the first built of the roads of this description, is twenty-three and a-half inches wide.—*New York Herald.*

CHRIST CHURCH CATHEDRAL.

IN addition to the munificent offer of Mr. Henry Roe to restore the fabric of this ancient cathedral, he has agreed to defray the cost of erecting a Synod Hall for the Church of Ireland. We perceive that the contractors, Messrs. Gilbert Cockburn and Sons, have thus early commenced operations—scaffolding poles, planks, and all other appliances being on the ground. The cost of the entire is put down at about £50,000, but it may be expected that a draw of a few thousands beyond that sum will be required.

"TO WHAT BASE USES."

THE building in Marlborough-street, originally erected for the "Dublin Savings Bank," has, since the removal of the bank to a larger building in Lower Abbey-street, been occupied in various dissimilar ways. It has been a temperance hall, an Irish school, a Rechabite hall, a cheap restaurant (kept by a black man), an oil stores more recently, and now it is being fitted up by the Corporation as the "City Morgue," in which King Coroner will hold his inquests!"

THE WORKING OF
"THE IRISH LAND ACT."

THE nature of some of the claims advanced lately under the Irish Land Act would seem to imply a belief that a landlord was bound to pay a tenant for the privilege of having him as an occupier of a holding. This is a popular error which the Chairmen of the County Courts, in their judgments, have done much to dispel. A claimant, for example, in Tramore, who held four acres of villa land, at a rent of £44, for three years, demanded £150 for being disturbed in his occupancy. Had the Chairman recognized such an extravagant claim he would have practically declared the fortunate tenant entitled to have the land free of rent and to receive a sum in hand on leaving. The effect of such a decision would be to make the occupiers of villas, such as stud the county of Dublin, virtually owners of their holdings, and oblige the landlords to pay them for giving up possession. There are, as might be expected in the conflict of interests, some instances of hardship on the part of the tenant; but the general course of dealing on the part of the landlords has been shown, by the severe test of this Act, to have been considerate and liberal. Nothing has yet transpired to justify the imputations cast upon them.

The case of *Holt v. Harberton* was heard at the Kildare Quarter Sessions in January, and on Monday last Thomas Lefroy, Esq., Q.C., delivered his judgment. We print below some of the more important portions of it:—

In this case a claim to register improvements has been lodged by a tenant, and the money value of the alleged improvements, as estimated by him in the claim, amounts to £3,166, the improvements consisting of:—A dwelling-house and offices, estimated at £4,379; a herd's house, estimated at £200; gate piers and gates for the farm, £100; a gate entrance and carriage-drive to the house, £120; 140 acres of land thorough drained, £988; 132 acres of land reclaimed from the bog, £1,320; 7,500 perches of old fences removed, £225; 900 perches of new fences made and quicked, £315; 15 cabins thrown down, and with their appurtenances turned into pasture, £200; 12 field gulleys across new ditches, £72; 412 cubic yards of walls in connection with herd's house, £247. The landlord has lodged a notice to dispute the claim, and, in pursuance of the provisions of the Land Act, it is now my duty to decide the matter between those parties. The large amount of the claim, and the fact of this being the first case of the kind which has been submitted for decision since the act was passed, as well as the difficulties involved in the construction of the act, have materially made the case to me a subject of anxious and careful consideration; but it is a pleasure to feel that the importance of the case is in itself a guarantee that any errors of mine will be submitted for correction to a higher and more competent tribunal. The facts, so far as they are important for the decision, are as follows:—Mr. Holt's father held part of the lands which Mr. Holt

now holds, previous to 1844, under a former lease, and built the dwelling-house mentioned in the claim. His landlord was so pleased with the house that, at Mr. Holt's request, he gave him another farm; and on the 1st October, 1844, granted him a lease of the two farms, which constitute the present holding. It contains 450a. 3r. 6p., and the lease is for 21 years and a life concurrent, at a rent of £318 16s., being about 14s. an acre, while Mr. Brasington values the lands alone, irrespective of the house and offices, at £525. The *cestui qui vie* is only 30 years old, so I may observe, in passing, that if the tenant pays his rent he may probably enjoy the benefit of his improvements for 30 or 40 years more, even if his landlord were inclined to eject him, though from the evidence as to Lord Harberton's gracious dealing in respect to this farm it is not probable, nor is it even imputed, that if the lease were to expire to-morrow Mr. Holt would be disturbed in his possession on this state of facts. I shall presently show that, whatever may be the money value of those improvements at the present time, it affords no test whatever as to the amount of compensation which the tenant will be entitled to receive from his landlord at the time when any compensation comes to be claimed. I mention this because I think it bears importantly on one of the questions raised—viz., whether it is necessary for this court to enter into and decide upon the money value of all improvements which are to be registered under the 6th section of the act. Upon this question my opinion is that the court is not called upon, and ought not to involve the parties in the expense of investigating the money value of such improvements. I think the Legislature intended only that the improvements claimed as executed by either landlord or tenant should be identified and recorded, so that hereafter, when compensation is to be awarded, if either of those parties were to claim for works not done by him, the registry of these works, under this 6th section, might be forthcoming to prevent injustice, to bind both parties, and to exclude from litigation the important question as to the actual improvements that were made, and by whom they were made. . . . I think we can see good reason why the Legislature should not require that on a claim to register improvements the question of value should be gone into; for it certainly would be a strange thing if this court were to enter upon an investigation (necessarily tedious and expensive to the parties, from the class of witnesses which must be produced in all cases where the valuation of buildings and land improvements are in question), and yet that by another section of the same act, as is admitted by counsel on both sides, all this investigation would be worthless in deciding the question of compensation to be given to the tenant, or as binding the court which is hereafter to make that decision; and it is obvious to any one reading the 4th and 5th clauses of the act, that the tenant's compensation must hereafter be decided, not by the present money-value of these improvements, or by the original cost of them, but by the various conditions and qualifications which, under the provisions of the 4th and 5th clauses, must govern the court in deciding the question of compensation. In order to explain what I mean I will give an instance:—Suppose this lease to last even five years longer, and that Lord Harberton were then to disturb Mr. Holt in his possession, it is plain, from the third sub-section of the 4th clause, that he could not get one shilling compensation for the new fences made and the old ones removed, for which he now claims £540, or for the drainage, for which he claims £988; and it matters not whether the cost of making those fences was 10s. a perch, as was sworn to by the tenants valuator, or 2s. 6d. a perch, as was admitted by the tenant to be what he paid, and as was sworn by the landlord's valuator to be the fair price; or, to give another instance, if the court which is to decide the question of compensation hereafter should be satisfied, as I am, on Mr. Hamilton's evidence, that the offices, for which Mr. Holt claims £1,600, were built in consequence of the lease of 1844 being promised and given at the very low rent at which Mr. Holt has enjoyed the present farm for 27 years already, then the court could not grant compensation for this outlay either. On these grounds I have come to the conclusion that the specific improvements made should be set out in the schedule to be filed in the Landed Estates Court, and not either the price at which they have been valued by the witnesses in this case, or the actual cost at which they were originally made, even if that could now be proved; and I will amend the schedule accordingly. The next question raised in this case was, whether I ought to register all improvements made by the tenant or his predecessors in title, or schedule those for which it can be shown that, under the 4th and 5th sections of the act, the tenant would not be entitled to compensation, if the time for claiming it had now arrived. On this question I agree in the views taken by the counsel for Mr. Holt, that the tenant has a right to have all improvements made by him or his predecessors in title registered, whether he may or may not ultimately be

entitled to compensation for them. I consider the word improvements in the 6th section of the act a generic term, including those for which it may be hereafter shown that the tenant cannot obtain compensation by the provisions of the 4th and 5th clauses, as well as those for which he can obtain compensation. My duty sitting here is not to act on my judgment as to the wisdom or folly of the act, but fully and fairly to carry out its provisions between the tenant and the landlord, whatever may be the result of those provisions. And when the Legislature has spoken in the 4th and 5th sections of two different classes of improvements, for some of which the tenant is to be entitled to compensation, and for others of which he is debarred from claiming it, and then in the 6th section, which immediately follows, declares that a landlord or tenant desirous to register any improvement may file a schedule, I do not see how I can say that it is a reasonable construction of these words to limit them by saying that they only mean "improvements" for which the tenant can hereafter obtain compensation. . . . An improvement is defined by the act to be anything which increases the letting value of the holding, i.e., which makes it greater than it was at the time of the granting of the lease. Now, it is impossible to say that this house, built previously to the lease, was not a portion of the premises demised thereby, and was not estimated in the rent then fixed; and if it were, on what principle can I be asked to hold that by it the letting value has been increased since the granting of the lease? Again, though the Legislature have, even in the case of leases existing previous to the act, plainly transferred that which was the property of the landlord to the tenant, by enabling the tenant to claim compensation for permanent buildings put up by the tenant during the lease, yet what is there in the act to show that they intended to go so much further in the transfer of rights from one class to another, as to say that this house, which admittedly, under the law as it stood previous to the Land Act, was actually surrendered as portion of the premises held under the old lease, and of which the tenant had accepted a re-grant as portion of the premises demised by the lease of 1844, was now again to be treated and dealt with, not as portion of the subject-matter of that lease, but as if it were an improvement made since that contract, and by which the letting value of the landlord's property had been increased, though the tenant had not laid out a shilling or done an act whereby to increase it, but simply continued to enjoy the benefit for twenty-six years of what was demised to him as the landlord's property just as clearly as the ground on which it stood. Once more, let us test this claim in another way. It is admitted there was a dwelling-house on this farm before, in which Mr. Holt's ancestors lived, and which is now thrown down. Now, it is well known that the building of another house is, at law, no answer to a covenant for keeping in repair the one which was on the premises before; and I ask what would be said if this lease were to expire to-morrow, and that on Mr. Holt's claiming compensation for the new house built, while he held under the former lease, as an improvement, that Lord Harberton were to say: "Well, if you claim the benefit of what you did under the old lease, I claim the benefit of the covenant in that old lease, and I will charge you for the breach of covenant in not keeping up the former house?" Would he be listened to for a moment in trying to set up a covenant in a surrendered lease? and yet am I to be told that the former lease is to be treated as surrendered for the purpose of defeating the landlord's rights, and yet as not surrendered for the purpose of giving rights to the tenant by dealing with it as if it were the same contract of tenancy under which he now holds? On these grounds, therefore, I have decided that it is my duty to amend the schedule by striking out the dwelling-house which was built previous to the date of the lease, to insert the offices, herd's house, garden, yard, and walls, and the entrance-gate, built since the date of the lease; also the portion of land which, according to the evidence, I believe to have been reclaimed since the date of the lease; the portion of the land thorough drained within twenty years, and the number of perches of new fences made, and of old fences removed within the same period. I am very sorry to say that in consequence of the parties not being able to enter into a consent to agree on a map with these details given, I have been unable to draw up the amended schedule as I hoped to have done, and even if the two maps lately furnished were duly verified, they do not fully supply the necessary materials to enable me to do so; but having now explained to the parties the principles upon which the amended schedule must be framed, I will let each party prepare a draught in conformity with these principles, and furnish those draughts to the officer of the court for my approval, or the officer will prepare a draught schedule, and when I have signed it the parties can take copies, so as to enable them to appeal, if they wish to do so.

GAS AS A SUBSTITUTE FOR OIL IN LIGHTHOUSES.

SOME interesting experiments have been made to substitute gas for oil in lighthouses, the particulars of which have recently been laid before Parliament. It appears that in the first instance these attempts were made at Granton, in October, 1868; and in consequence of the gas not being considered so good as might be obtained, permission was given to erect certain apparatus for the express purpose, under the approval of the Board of Trade. The experiments were, therefore, resumed on March 22, 1869, and continued during six evenings, from the elevated position of the Calton-hill, near Edinburgh. The result of the former trials showed that, with the annular lens used for revolving lights, the oil lamp gave a more brilliant light than the gas, while with the cylinder refractor used for fixed lights, the advantage was in favour of the gas as compared with the oil. The second series of experiments so far corroborated those previously made as to leave no room for doubt that the gaslight, when used with an annular lens, notwithstanding the greater size of the flame, was not superior to the effect of the smaller flame of the mechanical lamp, the explanation being, that the greater portion of the large-sized 7-inch gas flame, consisting of fifty-two jets, is *ex-focal*, and is therefore lost, so that with the lens no advantage is gained by increasing the size of the flame beyond certain limits, and these seem to be pretty nearly attained in the ordinary four-wick lamp. So apparent was this, that it was agreed to give up the idea of experimenting on the gas-burner, in its present form, as applicable to revolving lights, and to confine the trials to its use for fixed lights, in which, owing to the light being distributed equally over the horizon by the cylindric refractor, some advantage is gained by the employment of the larger flame of the gaslight. After the experiments had been fully organised, and several preliminary trials made, they were, during the last three evenings, so arranged that the observers were ignorant of the order in which the competitive lights were exhibited for trial. The observations were always made by two or more observers, and the lights were viewed with the naked eye, and also with Mr. Stephenson's liquid photometer. The mean results obtained show that, even with the gas then specially manufactured, they did not warrant the adoption of the proposed substitute for the present mode of illumination. One of the most important considerations likewise involved was the relative cost of maintaining the gas and oil lights. Under the most favourable circumstances this was in favour of the latter; whilst to all rock-light stations the gaslight would be inapplicable, and in isolated situations, where there many miles of land transport, the carriage of the coal would render it altogether prohibitory. Although these experiments were not productive of any result, so far as superseding the present methods, yet they have been highly valuable in showing the limit to which the size of a radiant may with advantage be increased, when used in the focus of the apparatus now employed in lighthouses. It appears that, with lenses used in revolving lights, no advantage is gained by using burners of the large diameter employed in the gaslight, and that for fixed lights a slight advantage is obtained. But whilst acknowledging the superior power of the gaslight, to the extent already stated, in the fixed-light apparatus, it is essential to keep in view that the large size of the flame employed to obtain the increase in intensity is, in some cases, an undesirable feature; for by increasing the divergence of the instrument to about 11° with the 6½-inch burner, it would render it inapplicable in all cases where the light has to cut sharply off to indicate points of danger. Upon the coast of Ireland, certain other experiments have since been made by Professor Tyndall, which proved more favourable to the gas than those named at Granton. This may arise from either of two

causes, or perhaps from both. First, the power of the oil-light used in making the trials may not have been the same in both cases; or, second, an improved form of burner, admitting of more perfect combustion of the gas, may have been employed; and should it be thought desirable to repeat the experiments at Granton with the burners there used, we learn that every facility for so doing will be afforded.—*Oil Trade Review*.

OUR STREETS.

OUR readers will probably be as much surprised as gratified to learn that the Corporation are about seriously to consider the best means of keeping the streets of Dublin in a proper state of cleanliness and repair. The subject has been long agitated, but without any apparent prospect of success. We find, by a draft report, of which we have received a copy, that it has engaged the attention of a special committee of the whole house, who have suggested a plan of improvement. Their recommendations have certainly not been drawn up with precipitate haste, for the committee were appointed sixteen months ago. They excuse themselves for the existing state of things by explaining that they got up eighty-eight miles of streets in a bad condition from the old Paving Board, in 1849. In 1850, they had twenty-two miles more added to those placed under their charge. They had to pay annuities to the staff of the old Board; and those charges diminished the funds, which are insufficient for their work—the whole amount of the improvement-rate being only 2s. in the pound. The ratepayers, who are taxed to the extent of nearly 10s. in the pound, and do not desire a heavier burden, will probably regard this as a discouraging fact; but there are some favourable circumstances to be taken into account. The charges are every year becoming less, and the Committee suggest a new system which would be at once *cheaper* and *better* than the present one. They point out defects in the construction of the streets, some of which are too convex in their outline, so that the traffic is drawn upon the weakest parts, and they complain very justly of the frequent breaking up of the pavement by gas and other companies, and the careless manner in which it is reset. This is really an acknowledgment that the Corporation have neglected their own duty, in allowing the streets to be so treated. Their proposal is to abandon the use of the inferior material now laid down, and to substitute the tough green stone from the county Wicklow, which they strongly recommend; to abolish the practice of watering the streets by carts, and to have the work done by hose and hydrant; to employ contractors in each ward, or at most one for two wards, to scavenge and cleanse the streets; or, if the Corporation prefer to do the work themselves, then to make the Assistant City Engineer responsible for its superintendence; to appoint two additional inspectors, to re-organize the scavenging staff, provide improved apparatus, and to constitute the alderman and councillors in each ward a committee of inspection and management, for the repair and cleansing of the ward; also to obtain the aid of the police to report each day upon the condition of the streets. The Committee are hopeful that the introduction of tramways will also diminish the cost, as the company will be bound to keep the broad belt traversed by the rails, and a margin on each side of them, in a state of repair; and they propose to use the tramways for removing the scavenging stuff at night. These are the main features of the new scheme, which will be submitted to the Corporation at their next meeting. Many of the suggestions will meet with general approval.—*Express*.

MISCELLANEOUS.

THE VENTILATING WINDOW AND SPARK PROTECTOR. This is an American invention. In place of the present single-pane square window there is a double window, which opens on either side as far as

permitted by a frame above and below in the form of a bay window. When fresh air is desired by the occupant of a seat, the half of the window toward the forward part of the train is pushed out, the other half remaining closed. Immediately an outward current is produced by the motion of the train, and the impure air passes out; but there can be no such thing as an inward draught, permitting the entrance of dust and smoke, and endangering the health of the passenger. [But are not negative draughts, if we may so call them, as bad as positive ones?] With the windows opened in this manner, there is said to be a perfectly free ventilation, and one passenger who may desire fresh air is not liable to promote the discomfort of others in the seats behind him, by creating a draught in opening his window. The ventilating window can be attached in addition to the ordinary window, thus forming a double window,—an advantage in the winter season. Mr. W. G. Gilbert, of Oswego, is the inventor.—*Builder*.

A MUSEUM FOR LURGAN.—The Right Hon. Lord Lurgan and his agent, John Hancock, Esq., J.P., are at the head of a movement for obtaining a museum for Lurgan. The committee have, through the last-mentioned gentleman, been presented with a large number of antiquarian articles of value, and it is expected that when all is completed, it will form a most rare and valuable collection. A series of lectures, in connexion with the scheme, have been originated by the committee. The inaugural lecture was given on Friday evening, by the Rev. J. Y. Rutledge, D.D., rector of Armagh, on "Light and the Spectroscope."

CARLISLE BRIDGE.—Under the head "Ireland," in the columns of a London contemporary, we find the following bit of intelligence:—"Carlisle Bridge, the battlements or which were to a considerable extent thrown over by the collision of a light schooner in the river some months since, is now again rendered safe. Iron pillars and Caen stone have taken the place of the granite before in use, and which still constitutes the old portions of the parapet. The latter material is represented as decaying rapidly, and all *must* shortly be restored."

CONVEYANCE OF SICK PAUPERS IN CABS.—A number of cab-owners appeared at the North Police Court on the 12th inst., to answer the complaint of the Poor Law Guardians, for refusing to carry sick paupers to the union workhouse in their cabs. The presiding magistrate said that after consultation with the other magistrates he had come to the conclusion that the cab owners could not be compelled to convey sick paupers, as required by the guardians, who ought to provide special vehicles for the purpose.

BREAKFAST.—EPPE'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPE & CO., Homoeopathic Chemists, London. Also, makers of Eppe's Cacaoine, a very thin beverage for evening use.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

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House of Commons, 2nd March, 1864.

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that of Messrs. Francis and Son; I mean the Cement usually
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cessary.—I am, Dear Sir, your obedient servant,
Messrs. White & Son. (Signed) **WILLIAM TITE.**

From **R. O. MINNIE, Esq., Surveyor to Board of Ordnance, London.**
War Office, Pall Mall, London, S.W.,
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tlemen, your obedient servant,
(Signed) **R. O. MINNIE, Surveyor.**

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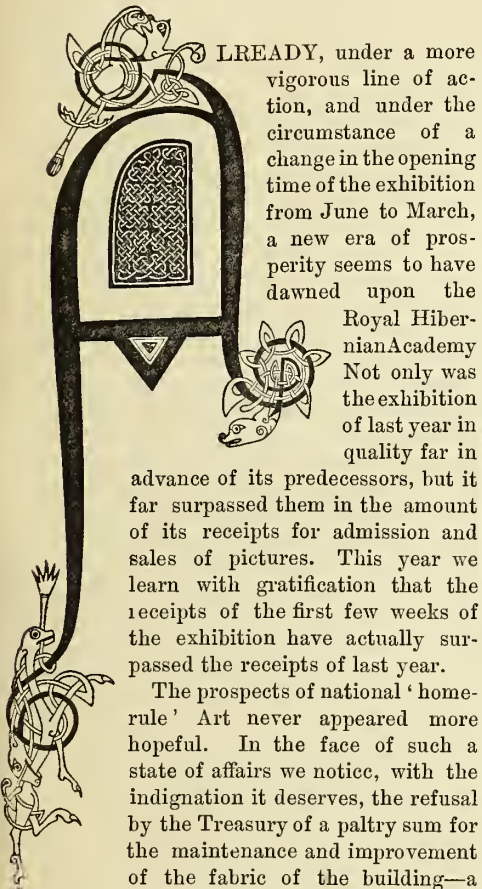
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The Irish Builder.

VOL. XIII.—No. 273.

The Royal Hibernian Academy—
the new R.H.As.



ALREADY, under a more vigorous line of action, and under the circumstance of a change in the opening time of the exhibition from June to March, a new era of prosperity seems to have dawned upon the Royal Hibernian Academy. Not only was the exhibition of last year in quality far in

advance of its predecessors, but it far surpassed them in the amount of its receipts for admission and sales of pictures. This year we learn with gratification that the receipts of the first few weeks of the exhibition have actually surpassed the receipts of last year.

The prospects of national 'home-rule' Art never appeared more hopeful. In the face of such a state of affairs we notice, with the indignation it deserves, the refusal by the Treasury of a paltry sum for the maintenance and improvement of the fabric of the building—a very paltry sum of less than £300. It is the principle of this refusal that should be scanned closely, not its amount. The Academy, in demanding it, have neither exceeded their just rights, nor made a mere appeal *ad misericordiam*. An Irish gentleman made a noble gift to the nation of a building for national purposes, and we insist that it is incumbent on the Government of a country which professes to foster art education, to maintain that gift. The Hibernian Academy is not a corporation existing for private or personal advantage. It is either a national school of art or it is nothing. What the fostering care of Government has effected for the Royal Academy, to its enormous pecuniary advantage, is well known. What enormous sums of public money have been lavished upon the vast museum of art which the Englishman may enjoy at South Kensington is tantalizing to us who are separated from it by a melancholy sea and an illiberal railway company. To Scotland (which in all truth we don't grudge) can be afforded a grant of £30,000 and an art museum of the Kensington type of inestimable value. To Ireland can be only doled out (and that with continual threatening of withdrawal of the generous pittance) an annual munificent grant of £300 hampered with restrictions, of which less than £100 is available for the support of the institution and maintenance of the building itself. Let our words be well marked, we have little doubt that unless some public attention be aroused and

directed to this pitiful business, and some expression of national indignation make itself heard very promptly, an attempt will be made to withdraw even this poor recognition of art. The fact of the matter is, that unless a stubborn opposition be offered persistently to the centralizing proclivities of present Government departments, the existence of all self-governed national institutions will continue to be menaced. Politics have no place in the pages of this journal, but there is a "home-rule" in certain matters concerning us which we must have. We will continue to demand of the Government more art advantages for Ireland. We want a local art museum. We want a liberal support of our National Academy, and, as a matter of taste, we prefer not to bow the knee to the Baal of South Kensington, or to be 'done for' by that almighty institution—no more than our Scotch brethren do in theirs—in our Academy of Painting, Sculpture, and Architecture.

The vacancies in the Royal Hibernian Academy occasioned by the deaths of Mr. Cregan, painter, and Mr. John S. Mulvany, architect, have been filled up. Unusual interest has, we understand, attached to the honorable contest for membership, the aspirant associates and their friends waiting for the result with keen anxiety. In the first election, as in the preliminary voting, Mr. Thos. Drew obtained a considerable majority, and in the contest for the second vacancy Mr. J. Butler Brennan was the successful candidate. The appointments of these two gentlemen have been duly confirmed by his Excellency the Lord Lieutenant.

The first appointment, and the large number of members by which it was supported, reflects high credit on the good feeling of the painters and sculptors of the Academy, and indicates their appreciation of the profession to which their founder, Francis Johnston, belonged. It is to the honour of the Irish corporation of artists that architects have been ever welcomed to its ranks cordially. It is an indication, too, of that desire for an infusion of new blood into the vitality of the institution, which even an outsider can perceive has, in the last two or three years, effected such a remarkable improvement in the prospects of art in Ireland, and the prosperity of the Academy.

The election of Mr. Brennan, too, will be hailed by all who know the working of the Academy with great satisfaction. Mr. Brennan has been for a long period of years a steady supporter of the exhibitions by his works, and is a worthy artist. This recognition of his merits comes not a day too soon. It is by the election of such workers as Mr. Brennan, and by eschewing mere ornamental names in the list of members that the Academy can, we suggest, only obtain and keep its renewed lease of vitality and success.

SUNDRY NOTES.*

WALL PLASTERING.

A FRIEND of mine recently gave me the following as a recipe for stuff for wall plastering:—"Mix one part of plaster of Paris with twenty parts of ordinary lime in powder, and work up with the mixture six times its bulk of sand; when properly mixed and tempered apply it in one coat, finishing the surface in any way that may be desired." I have every

reason to believe that such a mode of plastering would have great advantages over the ordinary system, it would be cheaper as regards both material and labour; the former from the very great proportion of the cheaper material—sand—being used, and the latter from the work being begun, continued, and ended in one operation. There would be also considerable economy of time, which is frequently of great importance; and incidentally it suggests a consideration of very great practical importance, viz.—the necessity of accuracy in building operations. The mixing and preparing of mortars and cements for use by the artizans is always left to the most ignorant class of men about a building, and is by them performed in the most hap-hazard manner; provided water, sand, and lime are mixed together, and that the mass is not too dry or too liquid, the relative proportions are left to guess-work,—at least I cannot remember ever to have seen any more accurate measure than the shovel or the barrow being used, even when such expensive materials as plaster of Paris or cement are being used, and I am afraid that if a system of mixing in measured proportions were to be insisted on, there would be a strike among the hod-men to resist an innovation on their time-honored privilege of wasting their employer's substance; or if opposition did not take so violent a form, such a system would have to encounter the silent but sturdy resistance of the class whose only grounds for pretence to skill was by implication impugned and discredited. But, nevertheless, some such step is most necessary, and if employers could only be got to feel the importance of it as regards their interests, I cannot but think that they would provide suitable measures, and insist on their being used. For such a mixture for plastering as I have mentioned the requisite proportions would be attained by using a quart measure for the plaster, a measure containing 5 gallons = 20 quarts for the lime, and a cubic measure containing a little over 5 cubic feet for the sand. Every one must perceive that the saving of material would very soon repay the cost of supplying and the slight extra labour of using these measures. Again, in using Portland cement for either plastering or as mortar for building, I have never yet succeeded in getting it used in proper proportions, which I take to be one in four or four and a-half for plastering, and one in six or seven for building. Some rough approximation to a system of measuring with the shovel has been made while I was actually superintending the operation, but I have always felt certain that as soon as my back was turned the old proportion of half and half, with a slight partiality to the cement, would be resumed. I think it well worth the while of both architects and builders to introduce, and insist, and persist in a system of accurate measurement in these respects. We all put certain proportions in our specifications. Why do we wink at their being left to the eye and judgment of a labourer to carry them out? If distinct proportions are worth specifying, they ought to be worth carrying out in practice.

BRICKS.

Why is it that Dublin cannot produce, for love or money, a decent, passable, ordinary brick? I have once seen good bricks made in the county of Dublin, and only once. Is there any reason why this should be so? Has nature left us so destitute of brick-making resources as to leave us dependent on Athy

* Read at Ordinary General Meeting of the Royal Institute of the Architects of Ireland, on the 20th ult., by James H. Owen, Esq., M.A., fellow, president.

for indifferent bricks, and cause us to welcome atrociously bad ones from Tullamore, from Balbriggan, &c., and gladly use them for inferior purposes? Is there not every reason why the contrary should be the case? Geologically the valley in which Dublin is situated is composed of a clayey limestone, the surface over which is formed, to a great extent of the detritus of granite rocks, brought down by the streams coming from the Dublin and Wicklow mountains. Without ever seeing it a geologist would predict that such a valley must be found to contain marl, that which, under the local name of *malin*, forms the material of the finest bricks of Suffolk and the metropolitan counties of England; and, leaving theory and coming to fact, there is a tiler at Kill-o'-the-Grange where tiles, flower-pots, &c., of excellent quality can be procured. Again, all the old houses in Dublin, without an exception, are built of red brick; now, except the solitary sample which I alluded to before, not a red brick has been produced in the county within the memory of man. Where then did our ancestors in trade get their red bricks? Could they have been imported from England? I think not. I have heard that the bricks for building the barracks at Ballincollig were sent over from London about the year 1804, but I do not think such a practice prevailed when there was no Government purse to bear the cost, and even if the bricks for facing were imported, this would not account for the immense numbers of old red place bricks, of most infamous quality, found in the interior walls of old houses in Dublin. I think no one would for a moment suppose that such rubbish was ever thought to be worth carriage across the Channel. I think we are compelled to suspect that before the present century Dublin made its own bricks, that they were red in colour, and of fair quality; I even am prepared to believe that in the time of Charles II. and William the Dutchman, the art of brick-making was carried to a high pitch of perfection. As regards the latter period, I have only to call your attention to the great number of old houses with long narrow windows and shaped gables pointing to the streets dating from this period; and as to the earlier, we have an example in the noble institution—founded by that great statesman and soldier, the Duke of Ormond—the Royal Hospital at Kilmalham. Under its hideous pall of stucco it conceals cornices and string-courses and window-dressings of moulded brick which are singularly effective. Were that building not in Ireland, and not under Government, its restoration to its original beauty would not long be an object to be desired, but despaired of. But to come to something a little more positive—to some grounds of known fact,—there is a map of the city and county, published by John Rocque, and corrected to the year 1773, in which, among other peculiarities, “Gallows-lane” is the ancient name of Upper Pembroke-street,—not unlike the similar improvement worked by Time in the occupation of Tyburnia at the north-west of London. On this map “Sandymount” is called “Brickfieldtown,” and the land stretching from it to the spot where the railway begins to cross the sands at Merrion is called “Lord Merrion’s Brick Fields;” furthermore, in sinking for foundations in that neighbourhood, at a small distance under the surface, all the usual signs of an old brick-field, where red bricks have been made, are found in

abundance. With all these theories, presumptions, and facts before us, is there not good ground for asking “Why is it that Dublin cannot produce, for love or money, a decent, passable, ordinary brick?”

DUBLIN MAIN DRAINAGE SCHEME.

Where a great and acknowledged public benefit is the object of any scheme, criticism of the details is almost ungenerous. It is almost like looking a gift horse in the mouth. The propounders, with no prospect of any advantage to themselves beyond what they will enjoy in common with the whole community, have in most cases taken great pains in preparing their project, and it deserves, if only for their intention sake, to be examined in a not unfriendly spirit, and with distinct appreciation of the merit attaching to the attempt at doing good. It is entirely in such a spirit that I make the following observations on the Dublin Main Drainage Scheme. It is probably known to everybody that the scheme put forward by the Corporation, to carry out which they are applying for Parliamentary powers, proposes to collect all the sewage of the city and suburbs, extending as far as the valley drained by the Swan river—that is the Rathmines and Pembroke Townships,—and carry it, with the assistance of sundry mechanical appliances, to a point of discharge in the Bay at the end of the jetty on the North Bull. There are alternative powers sought to be obtained to enable the Corporation to deal with a private company proposed to be formed for utilizing the sewage. Now let us consider separately the two ideas involved in the case, and examine it both as to the mode of collection and the ultimate application. And as regards the mode of collection, I cannot but think that the promoters have been led into a serious error in proposing to include the valley of the Swan river in their proposed scheme, and to invert the natural course of the drainage of very extensive districts and bring it through the city. Doubtless a difficulty exists in respect of crossing the Dodder river, but giving this difficulty its full weight, one cannot help suspecting that the temptation to spread the cost of the scheme over wealthy and extensive suburbs had more weight than purely engineering considerations; but this mistake, as I cannot help thinking it, is all the more serious, as it is exciting an opposition of a very powerful character, which can make a case which tends both to delay the works and add materially to the cost of the project. But apart from the question of collection, the ultimate application is open to very great objection,—so great that I think the delay of a year would be great gain, if it only led the promoters to give a careful reconsideration of what they will do with the sewage when collected. At present, apart from the possible handing it over to a private company for utilization, it is proposed, as I said before, to discharge it into the Bay just at or beyond the point where now the mouth of the river is practically situated, and it is calculated that none of it will be returned to the river by the reflux of the tide. Now granted that this last result takes place as anticipated, and that none of this sewage stuff is borne back into the inner bay, there can be no doubt that the deposit along the shores of the outer bay will be enormously increased; part of the shores of Clontarf, Dollymount, and Sutton are extremely offensive at present when exposed, and at Ringsend, Sandymount,

and Merrion you have only to remove a few inches of surface sand to find what the Liffey contributes to the health and comfort of the inhabitants of the sea shore. Now, if this is the case, when the sewage has been reduced by the deposition along some three or four miles of an open channel, what will it be when the whole contents of the sewers *plus* a collection from districts at present unsewered is deposited at the very best point for the action of tides and currents to sweep them on to the shores of the north and south sides of the Bay? This may profit Dublin, but I doubt if it will be satisfactory to those of the inhabitants who have sought purity of air at some distance from it. I think the provision of any discharge whatever into the sea, except it might be of surface water and storm water, to be a very great mistake. If completed and carried out, with all the success which its projectors anticipate for it, it at best only removes the nuisance, at great expense, a little further off, at the risk, as I have shown, of its starting up in a fresh place, and in a more intolerable form. Our Bay has been always considered “a thing of beauty,” I doubt if any “joy” in its shores would outlast their being made a place of collection for the contents of the Dublin sewers. But any such disposition of the sewage is a great mistake. It has been demonstrated at Edinburgh that town sewers, properly used, are fountains of wealth. It is practically demonstrated in the Phoenix Park that at very moderate expense raw sewage can be rendered inoffensive sufficiently to admit of its use for irrigation without persons even perceiving that the liquid which they see flowing by them has just been discharged from sewers. It is proved also that on suitable soil the results of sewage irrigation are of an extraordinarily profitable nature,—that bare sand will produce in money many times the value of ordinary unsewaged land. It is the fact that the Corporation has an estate of poor sandy land at Baldoyle not more distant than the proposed point of discharge. That there are hundreds of acres of sand, both already reclaimed from the sea and reclaimable at small expense, putting all which together, and taking time for reconsideration, there might and ought to be produced a scheme which, while not calling for larger outlay at present, would lay the foundation for repayment of that outlay in the future, with such interest as those only who know the history of the Craigentenny meadows are able to measure to its full extent.

COMFORTS FOR IRISH MILITIAMEN.

WE would wish to be informed if it was in view of the extra expense proposed to be incurred in providing comforts for the Irish Militia that the tax on “lucifers” was suggested by the over-liberal Chancellor of the Imperial Exchequer. We take the annexed extract from a circular just issued by the “Home Government” from her Majesty’s Castle at Dublin:—“4. The Irish scale of Camp Equipment is as follows, *on account of the dampness of the climate*, viz.:—One circular tent for every six men; one case paillasser per man; one case bolster per man; one rug or blanket *additional* per man; one dish, meat, per tent, rank and file; one tub, urine, ditto; boards and trestles, one set per man when the weather is so wet as to render it necessary that the men should sleep off the ground”!!

THE BARROW DRAINAGE.

A MEETING of landed proprietors interested in the Drainage of the River Barrow was held in the board-room of the Royal Dublin Society's House, Kildare-street, last week, for the purpose of discussing the correspondence on the subject which has passed between the Marquis of Hartington and the Board of Works, and which was forwarded as the reply of the Chief Secretary for Ireland to representations made to him by his Grace the Duke of Leinster and the Marquis of Drogheda on behalf of the proprietors on the Upper and Lower Barrow. Amongst those present were:—The Marquis of Drogheda, K.P.; the Earl of Rosse, Major H. D. Carden, J.P.; C. W. Hamilton, Esq., J.P.; William Phillips, Esq., J.P.; Captain C. H. Bowen, J.P.; Wm. Kemmis, Esq., D.L.; J. J. Verschoyle, Esq., J.P.; Thomas Nugent, Esq., J.P.; B. P. Fleming, Esq., J.P.; G. C. G. Wray, Esq., D.L.; Dr. Tabuteau, J.P.; Chas. Hamilton, Esq., Hon. C. Trench, &c.

The chair was occupied by the Marquis of Drogheda.

Mr. Townsend, C.E. (who appeared for Mr. J. Bower, C.E., who was detained in London), read the correspondence which we gave in last issue, and to which our readers can refer.

Mr. Hamilton, agent to the Duke of Leinster, considered that the answer received from the Chief Secretary for Ireland was a very abrupt one. It is putting a stop to all hope of the Government considering this, like the Shannon, a national question. This abrupt throwing us off is one of those instances in which anything brought forward in England is much more likely to receive Government support than anything in our own unhappy country. I don't wish to make any further observations on this point. As to the report of the Board of Works, I am very much disappointed; nor do I agree with their assertion that no reliable statement of the project is before them. Now, the first point I wish your lordship and the meeting to consider is, the Board of Works declared this, as a private undertaking, would not pay in 1858, when the cost of labour to be had in the country was about one-third of what it would be now. I think, then, that was supposed to be a very perfect system of drainage. The Board of Works call upon us to go to great expense, and to re-do the work they did before. What security have we that they will not treat us at the end of that, if we went in for the general scheme, as they have treated the proprietors of the Kildare district, and who were induced to go into the whole expense of a scheme for the drainage of that district? The Board of Works sent an engineer to report on it, and they sanctioned the scheme, but suddenly they turn round and say—"We will have nothing to do with it, and we withdraw our assent." Have we any security at all? Is it not a mere put off? I believe many other works which have been done by loans from the Board of Works from 1847 onwards, if they had not been superintended by us most wisely and carefully, would have been badly executed. I ask you whether the Board of Works could secure good work? They could not. I know drainage works in the County Wexford where the stones and clay were thrown into the drains again, and this was under the inspection of the Board of Works—at least it was passed on inspection, and the money borrowed was completely lost. Another thing which should be taken into account is, Dickson's Act was passed as a boon to Ireland, and I should like to know the real reason why the Board of Works of Ireland now turn their backs on us and say, "We can't now act under that Act," and they come to us and ask us to make a general scheme for an extensive district of country—a scheme too that will never work. There is no denying the fact that Lord Drogheda and the proprietors on the lower river are in a very much more difficult position than we are. Kildare, Rathangan, and Portarlinton have ample fall for the water which floods these districts, but then comes the difficult

question—"Are the proprietors on the lower Barrow to allow us to throw water on them?" This is a mere engineering question, and there is a great deal of plausibility about it. Twenty rivers at least have been submitted to drainage works under Dickson's Act, and not one of these is carrying the water out to the sea. Why then should the Board of Works stop drainage in Ireland, and say—"No; we have done all this, but we won't let you do it."? I don't think that in any way they are justified in any of the arguments they have used. I think I have said as much as I can say as to the general question at present. I am for supporting the scheme to proceed in small districts, and if we injure any one, let us pay for it.

Mr. James Dillon stated that, having been requested to report on the proposed Barrow Drainage by some of the largest proprietors in the Upper Barrow districts, including his Grace the Duke of Leinster, Lord Valentia, Sir Gerald Aylmer, Bart., Richd. Warburton, Esq., and others, he lost no time in erecting rain-gauges and flood-gauges in different parts of the catchment basin, embracing 625 square miles of country. He stated that the Portarlinton, Phillipstown, Rathangan, and Kildare tributary districts were each situated many feet in height above the flood levels of the River Barrow between Athy and Portarlinton; and that, as the quantity of flood water to be provided for in the upper districts was very much less than in the lower district below Portarlinton, the lands in the upper districts could be drained for little more than half what it would cost were they to be included in the larger Barrow scheme. He then explained most minutely the action of the floods in the upper and lower districts. He exhibited sections of the Barrow and its tributaries above Athy, to show that the whole country, particularly the upper districts, had a good inclination towards their outfalls; and that, as the present floods passed rapidly out of the different districts, no material injury would be done to the lands along the Barrow between Portarlinton and Athy, because there was a sufficient flood inclination towards Athy to secure a high velocity for their discharge, as was proved by the sections exhibited by Mr. Dillon.

[The whole subject is carefully treated by Mr. Dillon in three separate reports, which will shortly, we understand, be published.]

The Earl of Rosse, in support of Mr. Dillon's views, stated that he felt extremely doubtful as to the statement of the injury done to the proprietors on the main stream by the drainage of any portion of the upper stream. He would just mention a case in point. In the Castle Bernard district, which extends five or six miles, and just above Parsonstown, the lower river runs through his grounds. It was predicted by some of the engineers that by the drainage of the other river, the Lesser Brosna, some of the bridges would be carried away, and the grounds flooded more than they had been. But there has been no appreciable change, and no damage done to the bridges. Our walks and grounds are of course flooded when the rains come, but in consequence of the floods from both rivers not coming down together, the floods are really one hour before the time they came, when they both sent down their floods at the same moment. There has been very little injury—indeed less than the engineers expected.

Captain Bowen remarked that this in every case is a matter which is decided by the engineers; but it is well known that an engineer may not produce the same effect if his skill is applied to works in another district. The effect of any system of drainage must be tested and proved locally by the engineers; and because a certain event occurs in one district you cannot reckon upon the same thing taking place where the circumstances are different. For that reason it is unnecessary to go into that point, which is one specially for engineers. There is one general principle put forward with regard to the special drainage, which is very unjust. That is, with regard to the district which Mr. Dillon

stated was not to be called on to pay for work done for a portion in that district lower down than itself, to whom it would be immaterial whether that work was done or not, as far as their special interests were concerned. But if they injure the parties all below them, it is certainly an equitable principle in carrying out that work to benefit themselves to the injury of their neighbours, that the injured parties should be compensated for the damage done to them. For instance, suppose if this house discharges water off the roof to my house next it, and which is something lower; and suppose all this water comes into my drawing-room or dining-room, what might be a convenience to you would be a serious damage to me. I think if I went into court a jury would decide in my favour.

Mr. Hamilton—If your gutters were made properly they would carry away the water. It would not follow at all that your drawing-room should be flooded.

Captain Bowen—Am I obliged to make gutters to carry away the water from this building, because you choose to send it down upon me?

Mr. Hamilton—The whole question is its sufficiency. What would you think, my lord, of a proposition of having a committee to draw up a much more detailed and stronger case for the Government interfering through the Board of Works as to what ought to be done under the circumstances, in fairness to all the proprietors?

Chairman—I would put into that proposal to try what the effect of this small work would be, but I understand from Mr. Fleming there would be some difficulty in getting leave to do that small work. It is probable what Lord Rosse has stated would repeat itself again, but that cannot be depended upon, for we do not know what the effect will be as to the flooding.

Mr. Fleming said it would be well worth while to expend £500 to obtain this valuation.

Major Carden—I don't see why the suggestion of Lord Drogheda should not be carried out in some way. If those weirs and rocks at Bert were removed that might relieve an immense amount of district.

Mr. Hamilton—You could embody that in the representation to the Board of Works, and ask their opinion of what the cost would be. That would be the first step towards getting rid of the obstacles.

Mr. Fleming—The Board of Works decline to go into anything unless we give them a calculation of the value of the lands.

Mr. Townsend thought the valuation of the lands would be procured from a competent man for about £300.

After considerable discussion the meeting separated, without entering into any arrangement for supplying the data and valuation as required by the Board of Works in the report of Col. McKerlie.

PROPOSED NEW APPROACH TO CHRIST CHURCH CATHEDRAL.

THE city engineer has been directed to prepare plans and submit estimate of cost for making a new street from Dame-street to Christ Church-place. A very great improvement would be effected by the removal of all the houses on the north side of Castle-street (many of which are of little value in their present dilapidated condition) and also the block standing at west corner of Christ Church-place. We are not, we must confess, impressed with any idea that the improvement will be wrought without the usual routine to which we are so accustomed in civic matters.

CARPET TACKS.—Double carpet tacks of bent wire, are now used in New York. They are made of flattened steel, and are similar in shape to a common staple. A carpet fastened down by them can be more easily lifted, and with less risk of being torn, than if secured by ordinary tacks.

LECTURES ON ARCHITECTURE.

(Continued from page 103.)

In the works of Jones and Wren we may look in vain for any traces of Gothic feeling. Wren, it is true, did occasionally attempt Mediæval design, as is shown in his western towers of Westminster Abbey, but here he probably worked as other architects in the neighbourhood have been obliged to do since, under some sort of compulsion. What he would have done if free to act may be surmised from the course actually taken by Inigo Jones at St. Paul's. Here he added an elaborate Corinthian portico to the Gothic church, with the evident intention of ultimately pulling down the latter and rebuilding it in the Classic style. We must feel grateful to any one who may have saved Westminster Abbey from such a catastrophe, but we may see in this thoroughness the same feeling which prompted the Mediæval architects to remove without scruple the work of their predecessors. To Inigo Jones and his companions it seemed that no change could be too complete. To the rising Puritanism of the day, "old things had passed away, all things had become new." The same ideas had spread elsewhere, and England was only following the lead of more advanced foreign nations. France, Germany, and Italy had all adopted the Classical revival, and, with few exceptions, practise it to this day. Ecclesiastical feelings have largely influenced the architectural as they have, indeed, all other movements in England; but, apart from this circumstance, the revived forms of the Renaissance have been generally adopted by the laity. How far this may undergo a change it is premature and unprofitable to discuss at present; but when we find certain forms of building adopted by millions of deliberate choice and from considerations of fitness and convenience, weighty reasons may be thought to exist for such a conclusion. In the present state of our art confusion may seem to reign for a time, but we may be sure that the future of architecture must be determined in the end by the dictates of common sense. It was from this consideration that I insisted in my last lecture on the necessity of that general appreciation for art which can only be looked for from extended education. Architects are often controlled by those who know and care nothing about art. In private works this is natural and not perhaps improper; but our public architectural history gives us many examples of national loss springing from such conduct on the part of our authorities. Who has not grieved over the loss of Wren's grand plan for rebuilding London? Two centuries have passed since the Great Fire, but the Embankment which he planned is not yet completed, though millions have been spent on it instead of the thousands which would have sufficed in his days. Who can picture to himself the grandeur he intended, with its spacious quays lined with noble public buildings (including, as some have supposed, the Halls of the City Companies), and think without regret of the present state of the embankment, disfigured and mutilated for want of a comprehensive plan for building along its line, and in its neighbourhood. It is, indeed, no slight testimony to Wren's genius and foresight, that he should have been able to lay down so clearly the principles which we have at length carried out, although imperfectly. His fertility of resource and his activity were, however, wonderful. Besides St. Paul's, he was the architect of fifty-seven churches, the Monument, the palaces of Hampton Court and Winchester, the Royal Hospitals of Chelsea and Greenwich, the works at Westminster Abbey; the theatre at Oxford; other theatres in Drury-lane and Salisbury-court; the library of Trinity College, Cambridge; besides many other works, public and private. His son may well write,—"All those works form such a body of civil architecture as will appear rather the production of a whole century than the life and industry of one man." For all the above works he received a salary of only £400 a year; namely, £200 for St. Paul's, £100 for the churches, and

£100 for Westminster Abbey; and it is stated, that "he was content with this small allowance, always preferring the public service to any private ends. The "public service," however, is not usually very generous in its rewards to artists or men of science, and the only public illusion to Wren's services which I have been able to find, is a clause in an Act of Parliament of the 9th year of King William, which suspends payment of one moiety of the surveyor's salary until St. Paul's should be finished. The Act naively states that this was done, "thereby the better to encourage him to finish the same with the utmost diligence and expedition." He was afterwards superseded when eighty-six years of age.

Whitehall Palace, again, only now exists as a fragment. The present Banqueting-house is, indeed, not one-fortieth part of the original design. Had the latter been carried out, the question of our public offices would probably have been settled for ever, and a modern prime minister would not have had the opportunity of forcing his taste on a reluctant architect. By the kindness of Mr. Scott I am enabled to show you the block plan of the new public offices now just completed and in progress, and to contrast them, as to size and extent, with the plan of Whitehall originally proposed by Inigo Jones, which is drawn to the same scale. It will be remembered that, in 1857, before anything was done as regards new public offices, Sir Benjamin Hall, the then first Commissioner of Works, called for a competition for a block plan according to which the new buildings should be erected, so that a grand and comprehensive scheme might be laid down at first, and gradually worked out. This competition took place, and a plan was chosen. What has since happened may be told in the words of the present president of the Royal Institute of British Architects, in his opening address to that body. In this address Mr. Wyatt says,—

"That part of the Government Offices, comprising the Foreign and Indian Offices, is at last complete, and a new contract has lately been entered into for the completion of another portion, the Home and Colonial Offices. In this great work, timidity and indecision seem to have largely prevailed. The prize block plan for laying out the Government Offices (in the competition originated by Sir Benjamin Hall) has been disregarded, the new buildings seem to have no connexion with the other public offices as regards style or position, they have been done piecemeal instead of dealing boldly and at once with the whole group, wasting money in the tenancy and occupation of inconvenient and detached offices, now rented at heavy rates, and giving increased value to adjoining properties, which will ultimately have to be purchased."

I have already called your attention to Wren's great plan, which dealt mainly with what is called the City, and I may perhaps refer, without impropriety, to a plan almost as comprehensive for the improvement of Westminster, to which in the last years of his life my father devoted much time and study. He often said that though he felt the end of his own work was fast approaching, he was anxious to leave as his legacy to the public a record of the ideas which had long been working in his brain. In 1857, accordingly, he made his plan, and sent it to the competition. He was not a competitor, nor could the plan be considered competitive, being much more extensive than the conditions prescribed. His object was only to put his views on record, in the hope that such of them as were valuable might prevail in future times in the hands of others. The plan which is now before you is sufficiently intelligible, and there is the less reason to me to describe it, as you will find a detailed explanation of it in the published "Life of Sir Charles Barry." Much has been done since this plan was proposed; and it can now never be fully carried out. Parts of it, indeed, may even yet be realised, particularly the completion of the Houses of Parliament, on the approaching demolition of the Law

Courts, at Westminster Hall. But the time for carrying out the whole plan is gone for ever, and it must ever remain as "an architect's dream" of what might have been done for Westminster. In days when it is too common to blame architects for all the national shortcomings in respect of our art, it is allowable to point out that there has been no lack of grand ideas and noble suggestions by its professors, and that the chief responsibility rests with those who, unable to comprehend them, adopt, with reference to public improvements a niggardly hand-to-mouth policy, convenient perhaps for the moment, but in the end indecisive, unsatisfactory, and extravagant. We have an example of this result in the case of the National Gallery. Erected less than forty years ago, it is already condemned. Its architect was so hampered by financial considerations that he cannot be fairly held responsible for this result. His reputation is, indeed, sufficiently established to render us assured that with sufficient means at his disposal he could have given us a building more worthy of the nation, and the case only remains on record as a new warning, probably to be disregarded like so many others, that parsimony is not economy, nor a well-considered liberality, extravagance.

It is essential to the production of great works of art, whether of architecture, painting, or sculpture, that confidence should be placed in the artist, and a fair opportunity accorded to him of worthily carrying out his conceptions. We have seen what was the kind of encouragement meted out to the great architect of St. Paul's, and while on this subject I cannot omit reference to our largest modern work, the new palace at Westminster. As to its claims as a work of art it would be unseemly for me to speak, and unfilial to criticise. I may, perhaps, however, be allowed to say that I leave those claims without misgiving to the judgment of posterity. But on the amount of interference, discouragement, and undeserved censure, against which the architect struggled, I have some right to speak as one who knows. Who has not sympathised with the great architect of St. Paul's shamefully treated in his old age, or has not felt a burning shame at Pope's sad lines,—

"While Wren with sorrow to his grave descends,
Gay dies unpension'd with a hundred friends?"

There is a name to me more sacred than Wren's that recalls sad thoughts of a vigorous maturity discouraged, if not disheartened, and suddenly cut off by care before it had even commenced to lapse into old age.

Having now traced the changes in English architecture to the time of the Renaissance, we have seen that in each period of Mediæval times the changes which were made were such as were dictated by increased knowledge or by common sense. No Mediæval architect seems to have thought it his duty to look back and copy the work of his ancestors. This feeling dates from the Renaissance, and is to be deplored, whether Gothic churches or Greek temples are the models imitated. No age till our own has had such an extended knowledge of the history and practice of architecture. Our engineers have made us broad and easy paths for the acquisition of knowledge. The masons, or possibly the Freemasons, to whom we owe so many beautiful buildings, studied only the vernacular art of their time and neighbourhood. For them the great world outside had not yet found its Columbus, and these humble artists worked on patiently and truthfully, indifferent to what was doing elsewhere. They were in the position of a man with one eye, which he keeps steadily fixed on the object which engrosses his attention. With us it is different. With all the stores of the past laid open to us, we have far greater responsibilities. Having two eyes, we must not put out one of them. We cannot refuse, with Nelson, to see the signal which, perhaps too hastily, we disapprove. In the jarring contentions of styles and schools the real principles of art are too often lost sight of, and it is found easier to swear in the words of a master than to follow slowly and painfully the toilsome path which

leads to true greatness. In considering the prospects of the future, we cannot omit taking into account the tendencies of modern thought and civilization. Some may think that they are such as to lead us back to the thoughts and practices of the Middle Ages. If so, by treading the old paths we may arrive at the old results. If, on the other hand, it appears that mankind are more intent on the progress of the future than the revival of the past, architects will do well to note the fact and not kick against the pricks. In a scientific age architecture must have a reason to give for her doings, and cannot rest on prescription alone. We have seen in respect of works of strict engineering, as in the case of London Bridge, how satisfactory a result may be obtained by the adoption of simple forms with the aim of introducing only that which is suitable and necessary for construction. The converse is evident enough in those cases where the designers of such works have failed to realise the importance of this principle. In such examples ugly forms, half obscured by tawdry and misapplied ornaments, shock the feelings of a pure taste, and in their obvious incongruity cause us to remember nothing so much as the half-forgotten May masquerades of imperfectly-washed chimney sweepers. What then is to be the architecture of the future? Men often dispute so hotly that they fail to observe that, while they fight, a new foe, secret and unseen, threatens to destroy both disputants. Heated debates on the abstract rights of man have before now heralded revolutions which have trampled out the last sparks of real freedom. Religious controversies have resulted in frightful crimes, or have been a source of triumph to the infidel and the scorners. And so with architecture: while its professors contend for leaves, others may carry off the fruit; while they fight for a name, the thing itself may disappear. In addressing young students, and to them only I presume to offer advice, I would ask them not to range themselves too readily under an exclusive banner. Art is catholic, and claims all their devotion. Let them see that they do not lose its substance in following a shadow. I would ask them to examine the great examples of our art without prejudices and foregone conclusions. Let them be always as ready to recognise merit as to blame shortcomings. They should apply this rule with especial care in the case of school of thought other than their own, for they may be sure they will never have any difficulty in finding praise for the latter. And while it is certain that a true and real criticism is a necessity and advantage for art, too much cannot be said in deprecation of the too common depreciation of the efforts of artists. It almost seems that ignorance is thought to give some censors a special claim, for how often do we not hear a more than ordinarily flippant judgment prefaced by the statement that the speaker knows nothing about the matter? A real and generous criticism is an aid to art, but we have too often to deal with public utterances which are not criticisms, which are neither generous nor true, and which only prove that the utterer is insensible to the shame though he may appreciate the safety of attacking the absent. We may be sure that as success was never easy, it has not now become less difficult. The road to it must lie through failures, and we have all an interest in cheering the wayfarer, which ought to prevent unseemingly exultation at his stumbles. If our architecture is to be noble, it can only be the result of noble thoughts and high-minded actions on the part of those who practise it, and who are bound, therefore, in such matters as I have glanced at, to set a good example. Whether the result of our labours is to be the development of a new style of architecture, or a revival of any form of the styles of the past, may to some of us appear a doubtful point; there can be no doubt, however, that our aim should be to think for ourselves, to seek in every way perfection,—in a word, that “whatever our hand findeth to do,” we should “do it with all our might.”

(To be continued.)

ARCHITECTS' DRAWINGS.

In the Report of the Council of the Royal Institute of British Architects we find the following:—

In reviewing the events of the past session, the council need scarcely dwell on the extreme gravity of the difference which arose last year between Mr. E. M. Barry, R.A., and Her Majesty's Office of Works, respecting the ownership of drawings prepared by the late Sir Charles Barry and Mr. E. M. Barry himself, for the erection and subsequent alterations of the New Palace of Westminster. Apart from the interest which the institute as a corporate body was likely to feel in the solution of a question materially affecting the position and private rights of one of its members, the point at issue was one in which every architect felt concerned who cared to maintain a principle of professional practice, long sanctioned by custom. The special general meeting convened to consider the subject was a full one, and almost unanimous in its opinion. A series of resolutions was passed in support of Mr. Barry, and in deprecation of the unreasonable claim made upon him by the Government. Meanwhile a mass of evidence as to local custom, confirming the views then expressed, had been contributed by the principal architectural societies and practitioners throughout the kingdom. A deputation from the institute waited on Mr. Gladstone, and explained the feelings entertained by a large majority of its members, both on the subject of Mr. Barry's dismissal from his official position as architect to the Houses of Parliament, and also on the general question as to the right of ownership to architects' drawings. Mr. Gladstone promised that the Government would give the matter due attention, and Mr. Barry has since received from the Office of Works a communication which to some extent modifies the original claim of the Government. But the broad professional question still remains to be settled, and until some decision shall have been arrived at in one of the superior courts, where evidence of custom may be produced, doubt on the legal aspect of the matter must prevail. Under these circumstances, the council, having consulted the honorary solicitor and taken counsel's opinion, can only recommend that the ownership of architects' drawings should be secured to them by a special agreement between themselves and their clients, before any work is undertaken. The necessity of this course might be supported by many arguments, but it becomes doubly obvious while an impression exists on the part of the public that an architect, in parting with his drawings, gives up the copyright of his design.

IRON IN ARCHITECTURE.

SINCE the first introduction of iron among building materials, numberless have been the attacks made upon those employing it; some of these attacks have been sensible and well conceived, others entirely without cause and unworthy of reply.

The questions involved in the use of iron, relate to its value as a lasting and strong material, and the conditions under which it may be employed without violating the known and universally recognized laws of appropriateness in construction. As regards the superiority of iron over any other material, for performing a certain part in architecture, there can exist no doubt. Only the necessities of construction have made its use so general, especially in America. Cast-iron is so notably adapted to resist crushing weight, that slim columns perform the work where, of another material, a heavy wall would be required. Rolled iron possesses the same qualities when used for beams. Hence the demands of trade, where space is required for display, necessitate the use of the material which will support a given weight, and occupy the least room. Especially is this the case with store fronts, where only slim columns furnish a support, and obstruct but

little the view obtainable through broad glass windows of the goods beyond. This object could not be secured, were any material employed for the columns which did not unite strength with lightness. It is evident, then, that iron must always occupy a place in architecture which cannot be held by any other material.

The faults committed by those who use iron in construction, generally, arise from the fact that they do not fully consider its capabilities and requirements when artistically treated. Iron is strong, and conveys to the mind an idea of strength, but massiveness of appearance should not be the desired end when it is used in building. Here is a common error. From the nature of the metal, it must, to insure durability, be protected from contact with the atmosphere; painting becomes necessary. The character of this painting is an important thing to be considered. The ignorant designer causes the iron to be painted white, in imitation of marble, or brown, to make it resemble sandstone, or grey, to secure the appearance of granite. No greater blunder could be committed. With almost equal propriety might a chimney be painted in imitation of wood. Iron cannot be made to resemble stone for any great length of time, looking at its surface alone, and even could this be done, a glance at the slender columns supporting immense weight would cause their proportions to appear unsafe and ridiculous. But iron can be made to appear light and graceful, and, suited as it is for such an effect, it should be the aim of an architect to produce with it the style of building to which it is so well adapted. Consistency in architecture is desirable; more, it is absolutely necessary, and when iron is treated, not as stone or wood, but as metal, there will be no violation of any recognized law.

There may be architectural effects, and a due observance of rules of the different orders, in iron, as in stone. An acanthus leaf is as much of an incongruity in stone as in metal, and so with all other imitations of natural objects. But in all these there is no attempt at deception. We are not asked to believe that the objects represented are more than imitations. The acanthus leaf is not colored green to convey the idea that it is a vegetable production. It would be false and inconsistent to attempt so palpable a deceit. But it would be hardly more foolish to do this than to paint iron in imitation of stone or wood.

Iron may be painted; and it may be made beautiful in itself. It may properly exhibit bright colors, and be picked out with gold and silver until its surface sparkles. It is for such showy, graceful effects that this metal should be used; a material perfectly adapted for store fronts or buildings of any class where the essentials are lightness, strength, and showiness, rather than grave and ponderous effects.—*American Builder.*

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

An ordinary general meeting of the Institute was held on the evening of Thursday, the 20th ult. The president, James H. Owen, Esq., M.A., occupied the chair.

The assistant-secretary having read the minutes of former meeting, also a communication from the Royal Institute of British Architects relative to the conference to be held in London, said it was his painful duty to record the removal by death of three members of their body, viz.—Messrs. Wm. G. Murray, and C. A. Sherry, fellows; and Mr. Thomas Collet, student.

The President read a paper entitled—“Sundry Notes,” upon which there was an animated discussion, and for which he received a cordial vote of thanks.

Messrs. Charles Geoghegan, fellow, and G. C. Henderson, associate, acted as scrutineers for the ballot of Mr. W. M. Mitchell as fellow; Rev. J. W. Hardman, LL.D., as honorary fellow; and W. B. Law as associate; all of whom were declared duly elected.

CROWN LIFE OFFICE, DAME-STREET.

THIS building, of which we give an illustration, has been erected from the designs of Mr. T. N. Deane, R.H.A., architect, by the firm of Messrs. Cockburn and Son, at a cost of about £4,000. The style is the Byzantine Renaissance. The materials used are Portland stone, Aberdeen granite, and red Mansfield.

The offices of the company are on the ground floor, and comprise general office and board-room, with strong-rooms, lavatories, &c. The upper portions of the building are approached by a separate staircase, which is indicated on the exterior by raking windows, which have a pleasing effect, not only from their form, but from the evidence of internal arrangement being clearly seen and defined.

We have to note two buildings in Sackville-street, as well as the Munster Bank in Dame-street, by the same architect, of which we hope at a future time to give illustrations.

ASPHALTE MAKING.

GAS-TAR is not soluble in water. Make a note of this, for it is the chief point in asphalte works—roofs, tanks, walks, roads, and the like. As well might you attempt to mix tallow with water as gas-tar with water, and hence the importance of all articles being dry that have to be united with gas-tar. Now, when you get lime from the kiln, and slack it nicely by adding a large amount of cold water to cold stones of lime, the mixture will neither be cold nor wet, as one would think it ought to be, but fiery hot and apparently dry; yet there is no disputing the fact that into this dry powder you certainly did pour real water by the gallon, and it must be there now in some shape. Chemists tell us that when fluids assume the solid form heat is evolved, and although we may not recognise the presence of water, the gas-tar will; so that in all cases where slacked lime is mixed with gas-tar it is a grave error, for water is there, and "gas-tar is not soluble in water." But if you wish to get at the secret of asphalte making, pound the new lime and pass it through a fine sieve, and mix this with coal-tar, and see the result. The writer was shown a large factory that was roofed with paper, and covered with gas-tar and lime in this way. The owner had previously tried the slacked lime, and wondered at his failure. The intelligent workman will boil his gas-tar to get any moisture out of it, and having his pounded lime ready, he can add to suit his circumstances. The composition of bone is the point to be aimed at, for the bone-earth by itself would be hard, but not tough, and the gelatine would be tough and clammy, but not hard; mixed together in due proportions, they are perfection. Mineral pitch used in paving is very well for street work, but when the sun is powerful it is quite fluid; not so is the pitch when lime has been added, and as a small sample tried will give the proper proportion, there can be no excuse for having melted pitch adhering to the shoes of the passer. Lime is able to do the master-stroke, but it must do it in its own way. If the carriageway or footway is to be a permanent way, its levels must be rigidly set out first, and good hard materials used to make up the levels; white fine dry gravel, pebbles, or cracked stone, may be tarred and levelled and rolled just as would be done if no tar were used; but when the stone or gravel is tarred they absorb none, whereas the lime has united with the tar, and the compound is quite different from either of its parents. We see constantly about any of our large towns heaps of cinders and clinkers (scoriae) being mixed for making footpaths, the gas-tar poured on or over at random, the finer parts being left to make a smooth finish. This is good enough for parish business, and

is, moreover, cheap, but whoever has seen first-class asphalt in London and elsewhere will allow that it is very nearly all that could be desired for walks or roads.

DROGHEDA SURVEYORSHIP.

For the office of surveyor to the Borough of Drogheda we are informed there were "fifteen applications, from *very eminent men*, as appears by their testimonials." Mr. John Greene has been successful in getting the appointment. He has undertaken to act as surveyor and nuisance inspector, and to fill the other offices named in the Town Commissioners' Act. The compensation for all is £100 a-year!!

IMPERIAL GUARANTEE TO RAILWAY CAPITAL.

In our last issue we noticed a pamphlet from the pen of Mr. B. L. Fearnley on the subject of Railways in Ireland. We are happy to hear that this important matter is being well ventilated. Mr. Fearnley has taken the trouble of drafting a Bill which he submits for the consideration of members of both Houses of Parliament:

A BILL INTITULED AN ACT FOR AUTHORISING A GUARANTEE OF INTEREST ON CAPITAL TO BE RAISED TOWARDS THE CONSTRUCTION OF RAILWAYS IN IRELAND.

Whereas, the completion of the authorised but unfinished railways, in that part of the United Kingdom called Ireland would conduce to the welfare of that country and promote the interests of the British Empire.

And whereas, it would greatly facilitate the construction and completion of these railways if payment of interest on the capital required to be raised for the same were guaranteed under the authority of Parliament.

And whereas, there still remain large districts in Ireland in which railways would be of great local benefit, but which cannot be carried out without extraneous aid.

And whereas, great benefit has been found to arise from holding out and affording such aid and encouragement to public works of this class, but the sums of money granted have been nearly all appropriated.

And whereas, an Act was passed in the twenty-ninth and thirtieth year of the reign of her present Majesty, chapter 73, intituled an Act to authorise for a further period the application of money for carrying on public works in Ireland, but the powers contained in that Act and in the Acts recited therein have not proved sufficient to effect the completion of the Irish Railway system; and it is expedient to make further provision in respect thereof:

Be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same as follows:

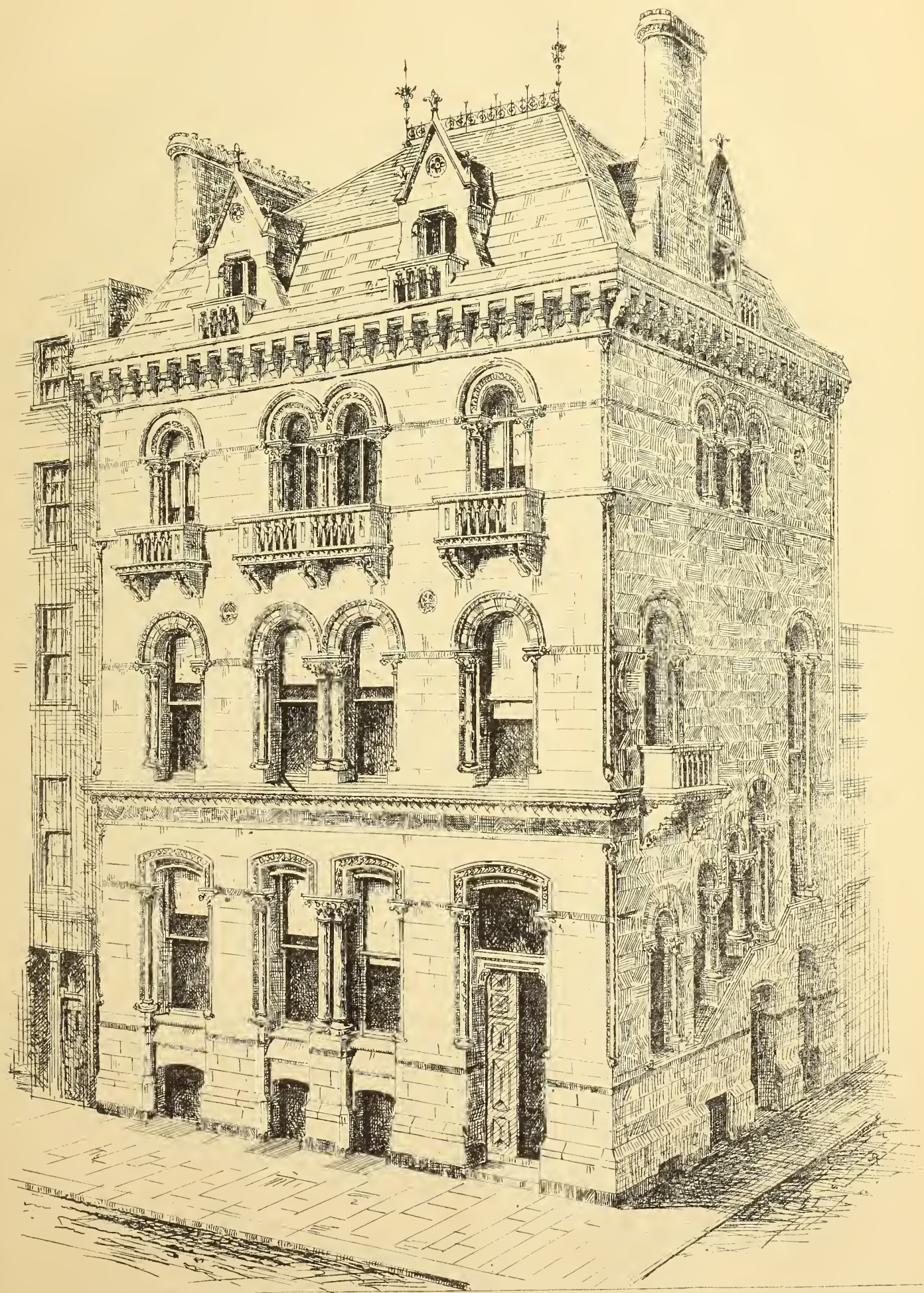
1. Subject to the provisions of this Act the Commissioners of her Majesty's Treasury may guarantee in such manner and form as they think fit, payment of interest at a rate not exceeding four per centum per annum on any principal money not exceeding the sum of million pounds sterling, to be raised for the construction or completion of such railways; and the Commissioners of her Majesty's Treasury may from time to time cause to be issued out of the Consolidated Fund of the United Kingdom, or the growing produce thereof, any money required for giving effect to such guarantee.
2. The Commissioners of her Majesty's Treasury shall not give any guarantee under this Act, unless and until the plans and estimates of any undertaking, applying for such guarantee, shall be approved of and confirmed by the Commissioners of Public Works in Ireland.
3. Such guarantee shall become operative and attach to the capital of such undertaking only on the opening of its line of

railway for public traffic, within two years from the date of the approval or confirmation by the said Public Works Commissioners, or within such further time as they, upon due and sufficient cause being shown, may extend.

4. Provided that any railway, constructed or completed by the assistance of the guarantee provided by this Act, shall be available for the use of her Majesty's military and other service.
5. Provided also that a sinking fund of an annual sum at a rate of one per centum per annum on the entire amount of principal money, where an interest is guaranteed, shall be remitted to the Commissioners of her Majesty's Treasury by equal half-yearly payments in such manner as they from time to time shall direct, to be invested and accumulated under their direction, in the names of four trustees, nominated from time to time, two by the Commissioners of her Majesty's Treasury, and two by the companies or undertakings, whose capital shall be guaranteed, such sinking fund and its accumulations to be invested in securities of the United Kingdom, or such other securities as may be approved of by the Commissioners of her Majesty's Treasury, and to be applied under their direction in discharge of the principal whereon interest is guaranteed.
6. Should the Commissioners of her Majesty's Treasury be called on by any deficit in the income of said railways to make good their guarantee, or any portion thereof, the same shall be recouped as regards one moiety of such deficit by an addition to the Income Tax assessed upon that part of the United Kingdom called Ireland, and as regards the other moiety thereof, by a rate levied upon all property at present assessed for the maintenance of the poor.
7. There shall be laid before both Houses of Parliament within fourteen days next after the beginning of every session, a statement and account showing what has been done from time to time in execution or pursuance of this act by or under the directions of the said Commissioners of her Majesty's Treasury and the said Commissioners of Public Works in Ireland.
8. This act may be cited as the Railways (Ireland) Imperial Guarantee Act, 1871.

THE PHENOMENA OF SLEEP AND DREAMS.

THE above was the title of one of the series of Afternoon Scientific Lectures at present being delivered on Saturdays in the Theatre of the Royal Dublin Society. The lecturer was Dr. J. R. Green, of Queen's College, Cork. After stating the mystery which shrouded the phenomena, notwithstanding all that had hitherto been said on the subject, the lecturer proceeded to explain the effect produced by the absence of sleep for any prolonged period, and its cause and influence in mental diseases, seeing that we spend generally from one-fourth to one-third of our time in somnolent oblivion. The amount of our lives spent in sleep, or, at least, in physical and mental lethargy, was frequently much more than was needed, for the refreshing value of sleep depended more upon its quality than upon the duration of time thus occupied—one hour of genuine, refreshing sleep being often better than a whole night. A remarkable circumstance in connexion with sleep was its periodicity. The expression that "custom became second nature" was now the more true than in regard to sleep; and the tendency to waking and repose, which, if cultivated for any little time, always returned about the same hour. Sleep was really related to its semblances, coma and trance, the former word, indeed, being in the Greek synonymous for sleep itself. But in sound sleep there was no voluntary emotion; yet the pulse did not vary much, but the respiration was considerably altered, though the posture of the body had a good deal to do with this. There was then, however, being



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stored up in the body a quantity of oxygen to supply the waste of the day, while the amount of carbonic acid became less than during waking time, and the temperature became lowered. With regard to the causes of sleep, they might be divided into the predisposing and the active. Previous exertion did much to do with it, though over exertion did not always produce it. The procumbent position aided it, though not absolutely essential, for people sleep on horseback, standing upright, or sitting without support to the back. The state of the bodily health affected sleep, and so likewise, and even more so, did the amount of mental tranquility. Quiet, however, was merely a predisposing cause, and our absolute knowledge of the phenomenon of sleep positive was extremely scanty, for this reason, that the experimental method which had been employed with great success in other fields of research, was almost totally excluded in this. Dr. Dunne, however, had succeeded in determining that the main cause was due to the diminution of the circulation within the brain. Temporary sleep affected the nervous system, the waste of whose every activity at this season underwent reparation. The brain was more pallid in sleep from this diminution of current in the circulation, and as the person awakened, the original force of the blood returned. But this alteration in circulation was produced and controlled by the difference which the calibre of the vessels underwent by the contraction of their coats from the action of the nervous centres or sympathetic ganglia, which formed, in all higher animals, an additional nervous system to that of the spinal marrow system, and by these ganglia the supply of blood was governed. Now, when the brain was active, it drew much oxygen from the blood, while a large amount of blood was flowing to supply it, but in affording the supply, a certain amount of the brain itself was wasted from contact with oxygen, which produced effect on everything it met, and during sleep the wasting which the brain thus underwent was being over again re-constructed. This was the generally accepted theory. The lecturer then entered with much elaboration into the discussion of other circumstances of much interest in relation to the state of dreaming, somnambulism, and of madness, examining the metaphysical doctrines on the subjects as rigidly as the physiological ones; and, finally, alluded to the subject of sleep in connexion with other higher animals and with insects.

ANCIENT CHURCH AND WELL CALLED TOBERKEELAGH.

THE district in which these are situated is one which, comparatively speaking, is very little known. It is nevertheless highly picturesque, and the antiquarian tourist who, with the assistance of Sir W. Wilde's admirable book, has explored the eastern shores of Lough Mask, with its interesting castles and ecclesiastical ruins, cannot but be struck with the wild beauty of the majestic chain of mountains that bound the opposite shore of the lake. Among the nearer objects that engage his attention will be the tasteful plantations about Tourmakeady Lodge, the property of Major Horsfall; and at about a mile further south, a single tree standing near the lake is a conspicuous object. At the foot of this tree is an ancient well, which is held in great veneration by the peasantry of the neighbourhood. It is called on the Ordnance Map Toberkeelagh (the well of St. Keelagh, or perhaps more probably Keelan). Immediately over it is a bush, on which pieces of cloth, &c., are generally hung as votive offerings; and at a few yards to the south is a stone seat, which appears to be of ancient date. "Stations" are performed here almost every day, during the course of which it is usual to walk barefoot around the well, tree, and bush. The practice of leaving some portion of their dress, &c., on the latter appears to be a very ancient and probably an

Oriental custom, for in "Frazer's Handbook for Ireland," at p. 64, where the author describes a similar well and bush at Ballyman, near Bray, he refers to Sir W. Ousley's "Travels in Persia," who says: "we passed by an old and withered tree half covered with rags, fastened as votive offerings to the branches. I had already seen four or five near Abdn, and two or three previously in other places." And he also says that "Mörner, in his second journey through Persia, makes mention of the tomb of a Persian saint and a small bush close beside it, on which were fastened various rags and shreds of garments, that it was supposed had acquired, from their vicinity to the saint, virtues peculiarly efficacious against sickness." Again he says, that "Chardin made similar observations at Ispahan," and that Brand and Pennant speak of a similar custom in Scotland.

These mementoes are not always rags. Portions of their hair are frequently left; and the grey silvered locks of age will often be seen fluttering in the wind with the fair curling tress of some youthful votary.

About a mile south of this well is a ruined church, which was probably dedicated to the same saint; and indeed there is a popular tradition, that the holy well just described was originally beside this church, but that, having been desecrated by some irreligious person, it was miraculously removed to its present place.

The church is a rectangular building, measuring externally 42 ft. in length by 22 ft. 8 in. in width, and the walls are 2 ft. 6 in. thick. Most of the eastern gable is standing; it is about 24 ft. high. Of the rest of the church little remains but some 12 ft. or 15 ft. of the western gable, and about the same height for a few feet of the southern wall. The foundations of the rest can be traced. The doorway was probably in the southern wall.

The only interesting feature in the church is the window in the east wall, which would serve to fix the date to about the middle of the fourteenth century. Externally, it measures 38 in. in height by 9 in. in width at the sill, lessening to 8 in. at the top. There are three holes at each side, probably intended to hold horizontal bars. The semicircular head is, as usual, cut out of a single stone, and those which form the jambs are fitted with the utmost exactness. The window splays internally to a height of 5 ft. 3 in., and a width of 2 ft. 6 in.

In the same wall on the right, and at about 2 ft. from the present level of the ground, is a small square recess, measuring 1 ft. in height, width, and depth. No trace of any hole was found in the under slab; it was probably not a piscina, but one of those recesses common in ancient churches known as ambreys, which appear to have been used for the keeping of sacred things.

It is difficult to determine who was the patron saint of this church and well. As I before remarked, the name of the latter on the Ordnance map is Toberkeelagh, but I am informed by intelligent people in the district that it should be Toberleelan. Might not this Keelan mean St. Kilian. Might not this Keelan mean St. Kilian. There were two Irish saints of this name; one who was born in the seventh century, and who, being distinguished for great sanctity in his own country, was consecrated bishop, and having preached the faith in Franconia, was there martyred in A.D. 689. The other St. Kilian, a relative of St. Fiacrus, preached in Artois. He also died in the seventh century, and it is mentioned that his body is kept at Aubigny, near Arras, in a priory of canons regular which bears his name. He is honoured on the 13th November.

SCIENTIFIC PROGRESS.

THE Institution of Civil Engineers (London) held their annual dinner on Saturday week. They civilly invited, amongst other guests, the Chancellor of the Exchequer. The right hon. gentleman, in proposing the toast of the evening, adroitly confessed that a considerable portion of his time had been occupied

in "a little bit of engineering" of his own. He, no doubt, alluded to the tinkering up of his budget, which required genius of a peculiar stamp, particularly as he had made an onslaught on "lucifers." He proceeded to say:—

"I am of opinion that the profession of civil engineers is, perhaps, the noblest that this world has yet seen. When I consider the ordinary education of the country, and compare it with that which formerly existed, I am astounded by the striking contrast between the two. The education of those who have been brought up in our great public schools and universities was concentrated in a great measure in the contemplation of the deeds of people long since passed away; of people who knew little or nothing of nature, very little of the world in which they lived—very little, in fact, except the squabbles and quarrels they had one with another, and which they carried on on a scale of the most minute nature. When I think of the celebrated battle of Marathon, which was the object of my schoolboy ambition, where 192 persons perished on the side of the victorious army, and when I compare that with the drama that has been enacted in another part of Europe during the last six or seven months, I cannot help thinking to how small a matter our schoolboy energies were directed. Why, gentlemen, a good colliery accident under your auspices would throw that into the shade! Well, gentlemen, I turn from these pursuits, beautiful and attractive as they are, but narrow and small, and unfit to form a man to take part in the great drama of life, to the education that ought to be required, and will be required in future days, on the part of the civil engineer. What is that? In order to ascertain that, I look to the objects for which this institution was incorporated. Your business and object are to direct the sources of power in nature to the convenience and advantage of mankind. Now, gentlemen, that involves a double consideration—a speculative and a practical one. Any man who is to be fit for carrying out in its high sense your noble profession ought to make himself master of those occult influences which surround us, and of which the ancients to whose history we have devoted so much of our time knew absolutely nothing. It is you and your predecessors in inventions and discoveries who have demonstrated in nature forces that were never dreamed of till within the last 200 years—the power of attraction, the power of electricity, which has given to us, weak, short-sighted mortals, the ability to accomplish instantaneous action over the whole course of the globe. It is a duty and a happiness to direct these great influences for the convenience and good of mankind, to improve, to moderate, and regulate them, so as to render them faithful and obedient servants, and capable of accomplishing deeds which no fabled deity or giant could ever have accomplished. We have lately read the last work of the great philosopher who has written on this subject, who demonstrated to us how nature has moulded herself into her present shape. It is your business to play the return match, and do what she has done for you, and to mould her to your own purposes, so as to enable man to traverse the raging sea with safety, and to make a highway over the land which he can pass over with the swiftness of the fastest bird. It would ill become me to speak of the feats which have been performed in this direction since I can myself remember. It is bewildering to think of the progress that has been made. Gas, steam, electricity, are not creations of a remote age; they have come into existence within the last sixty years of this century, and when I think of what has already been accomplished, I cannot help looking forward with increased wonder and hopefulness as to what must be reserved for engineers to accomplish in the future; and it would almost make one wish to come back for a day fifty years hence, if it were possible, to see what new achievements had been made."

In the neighbourhood of the North Lotts are some very suitable plots of building ground, where the capitalist of any power may invest with advantage. Since the Liffey Branch Railway was opened some ten years ago (although there is no passenger traffic) the number of houses here has increased fourfold. Not the least amongst these erections is the detached house now being built on the Church-road by Mr. Richard Grierson, for his own occupation, at a cost of £230. It has a frontage of 36 ft. The plan of having a raised first floor level—so necessary in this locality, and so frequently overlooked—has been adopted here, thus forming a basement storey. The material used is County Dublin stock brick, with red brick facings, and window jambs of moulded bricks.

THE STONE PERIOD IN GREECE.

INFORMATION concerning the Stone Period in Greece may be interesting to many of our readers, and new to most of those who occupy themselves with the study of pre-historic archaeology. The oldest antiquities in a country long visited by able observers in search of antiquities have hitherto, by some unaccountable oversight, almost entirely escaped the notice of travellers and antiquaries, though, it is evident from several passages of Pliny's 'Natural History,' that they attracted the attention both of the Greeks and Romans. These pre-historic relics are much more numerous than might be supposed from their having been so long overlooked; and, indeed, their number is a reproach to antiquaries in a country where so much attention has been devoted to the search for antiquities by observers from every country in Europe. The writer of this letter directed the attention of the dealers in coins and antiquities to the importance of relics of the Age of Stone, and gave them a money value, by printing, in 1869, a pamphlet, in Greek, on Pre-historic Archaeology in Greece and Switzerland, which he distributed over the country as widely as lay in his power. The only pre-historic relics that had long attracted notice were the artificially-formed fragments of obsidian, which, when found in the tumulus of Marathon, were misnamed Persian arrow-heads; but which the writer observed, in 1836, must have been mixed up in the soil when the earth was heaped into a tumulus over those who fell at Marathon. Sixty years ago, Sir William Gell picked up similar fragments, which he called flint, at the *triados*, where the three roads, from Livdeia, Daulis, and Dystomo to Delphi, unite at the entrance of the pass between Parnassus and Cirphis. Gell, under the impression that the fragments at Marathon were Persian arrow-heads, says of those he found at the *triados*, that they were "perhaps a confirmation of the discomfiture of the barbarians in the *Odos Schiste*." Similar artificial fragments of obsidian have now been found in many places in Northern Greece, the Peloponnesus, and the islands of the Archipelago.

The only collection of stone axes or celts which existed besides that of the writer, previous to the distribution of the pamphlet, was formed by M. von Heldreich, Curator of the Museum of Natural History at Athens, and may be seen in the mineralogical collection at the University. Since the circulation of the pamphlet, the writer has increased his collection of stone relics, independent of knives and other pieces of obsidian, from not more than a dozen objects to upwards of 250. The stone axes or celts alone amount to 170, varying in size from under an inch in length to upwards of six inches, and are of the forms represented in Sir John Lubbock's 'Pre-historic Times,' p. 68, and Sir William Wilde's 'Descriptive Catalogue of the Antiquities in the Museum of the Royal Irish Academy,' Vol. I. pp. 41 and 45. The greater number are smaller than those preserved in the museums of Switzerland. Dr. Keller, the kind and zealous President of the Antiquarian Society of Zürich, pointed out to the writer, in the summer of 1868, six or seven good specimens of the common forms and material in Greece, which had been collected in the island of Eubœa, and presented to the Museum of Zürich. The long, flat implements, that resemble chisels, are rare, because they were easily broken. The finest in the writer's collection is six inches long, an inch and a half broad, and three quarters of an inch thick. It is of a green stone, as is apparent from a fracture, but the surface is white, probably from the effect of fire. Hammers are also rare, but the collection contains two pierced with round holes for handles. In form the hammers resemble those found in other countries; but one is triangular, and another, which is two inches and a half long and nearly as broad, formed of a beautiful dark green stone, resembling heliotrope, has one side beautifully polished, to serve as a polisher. One of the axes, nearly four inches in length, is of the

same beautiful material, and has been highly polished, but its edge is almost entirely broken off. Slingstones, oblong, oval, round, and flat elliptical stones, are also found; and several polished triangular stones, of various sizes and different forms. A few stone points or borers have been also collected.

The stones of the greater part of the implements found in Greece are finer and harder than those that are found in the rest of Europe. The greater number are of grey, greenish grey, and brown stones (apparently varieties of diorite), green stone, porphyric stones, and brown iron-stone. Many are also black, from lustrous velvet black to dull brown, Lydian stone, basaltic stone, and iron-stone, which from its polish has a metallic lustre, and looks like steel, but is not magnetic. A few of these dark stones, but not the heaviest, are magnetic. Red jasper, iron-clay, and granitic stones are not uncommon. Seven or eight of the smaller celts are of jade or nephrite, varying in their green colour and in their degrees of hardness. There is a small chisel of amethyst, rather more than an inch in length and nearly half an inch broad, with two notches on the sides for tying it to a handle. There is also a small axe-shaped celt of carnelian, an inch and a half long and an inch broad. I fear to fatigue your readers with details that might prove interesting only to students of pre-historic archaeology.

It would be a step towards enlarging our knowledge concerning the pre-historic population of Greece, if we could ascertain with certainty the character of the sites selected for their villages or towns. Where many families dwelt together, positions adapted for defence with stone hatchets, obsidian arrow-heads, and sling-stones, or casting-stones, from the hand, would be occupied when they had easy access to a supply of water, from which it would be difficult for an enemy to cut off the communication. It is probable, therefore, that when the lakes of Greece shall have been carefully examined by intelligent observers, traces will be found of lake-dwellings similar to those of Switzerland, Italy, Ireland, and Scotland. The plain of Dobrena, near the ancient Thisbe, must have been a lake in pre-historic ages. Works remain which, in very early times, converted it from a marsh into land capable of cultivation; and these works were, of course, ascribed to Hercules. They still serve their original purpose, and upbraid modern energy and intelligence, which cannot dominate the waste of waters at the lake Copais. Many fine stone implements have been found at Dobrena. From Tanagra a good many specimens have been obtained, and a good idea of the defensible nature of the site and its facilities for commanding a supply of water may be seen in the sketch given in Leake's 'Travels in Northern Greece,' ii. 453. The site was as well adapted for the men of the Age of Stone as for the Greeks of the heroic and classic ages. Another class of pre-historic habitations will be found in sites that offered very slight defensive advantages in later times, when the knowledge of metals gave men greater powers of attack. One of these villages of the Stone Period occupied a secluded position in the range of hills that connect Parnes with Pentelicus, overlooking the plain of Aphidna. It is an area surrounded by heights, protected against the cutting north winds of winter by rocks which form a precipice barring all access from the plain below, except by the gorge of a small ravine which afforded the supply of water. Large quantities of chips of obsidian, as well as numerous artificially-worked fragments, are found all round embedded in the soil. Other sites might probably be ascertained from the quantities of obsidian scattered about. At Kephisia and Aghias Kosmas on the Attic coast they exist in great quantity; and, it must be observed, that obsidian is not found either in Northern Greece or the Peloponnesus, and must have been transported in the boats or canoes of this Age of Stone.

Another interesting subject for investigation will be to ascertain from whence the

stones were obtained of which the implements found in Greece are composed. Many were evidently worked out of the rolled pebbles found in different parts of the country, which were selected from experience of the toughness that was combined with their hardness, and from their natural form requiring the least possible labour to give them the desired shape. Red jasper, iron-clay, and brown argillaceous iron-stone are found as rough pebbles in the glens of Eubœa, and celts fashioned from them are not uncommon in the island. Jade, amethyst, carnelian, and Lydian stone were perhaps brought from other lands.—*Athenæum*.

THE RESTORATION OF OLD CATHEDRALS.

At a recent meeting of the Liverpool Architectural Society a paper was read by Mr. Samuel Huggins, "On the so-called Restoration of our Cathedrals and Abbey Churches." After dwelling at some length on the beauty and the moral and intellectual value of the edifices in question, he proceeded to the expression of his views as to the nature and effect of the operation called *restoration*, to which so many of our cathedrals and abbeys and ancient parish churches had been subjected throughout the land. He said it was cutting away the old familiar face that had looked out upon and been lovingly looked upon by a score of human generations; the face on which the lights and shadows of ages had been cast; that had borne the brunt of time and change, weather and atmosphere, and other natural influences, and which had given it such tints and harmonies as rendered it more beautiful than in its prime—tints and harmonies that lent new gladness to the sun-beam, and that beggared all the artificial polychromy in the world: it was cutting away all this, and substituting for it a feelingless mask of new stone hewn by workmen of to-day. It was putting the inside, the mere lining of an old church, into a new outside one; the new one being supposed to exhibit the design and character which the old one exhibited 700 or 800 years ago. So had many of our finest cathedrals been "restored," not only obliterating so many beautiful pictures, but wiping out so much historic record which existed for us in these stone relics of the past. It was of no use to tell him that this treatment of the edifices in question was for their preservation, because it made them not worth preserving. It was the destruction of everything in them for which we loved and prized them. So treated, any building lost its identity and merged its existence in another, a new and comparatively uninteresting building. If asked what he would do with these structures, he would answer, "Let them alone"; and seeing they were confessedly unsuitable forms as regards their present uses, employ the money in entirely building suitable ones, exactly adapted to the present worship—a course by which we should have in each case two cathedrals, one a really useful one, and the other left in its integrity, and all its native and acquired beauty, instead of one bad one, uncomfortable as a church, and spoiled as an antiquity. As to the old buildings, he believed that, in a majority of instances, with their enormously thick walls, they had sufficient strength left in them to brave the tooth of Time and be the delight of all men of taste for ages to come, increasing in interest and beauty for every succeeding generation; and when they fell to ruins being more beautiful still—a state, however, which, if duly protected, they would be many centuries in reaching, for those buildings that had reached it did not reach it by the action of any agent at present operating on our cathedrals, but only by violence, war, or the religious fanaticism of the reformers. It was generally supposed that for the loss of all this historic interest, and of the beauty that time and weather bestow, we were compensated by getting back in each instance the original architectural beauty of the building as it came from the hands of its author: but this was a great mistake. He believed

this restoration not only did not bring back the original beauty of the building, but it took away what little may have remained of it. He did not blame the architects for this evil so much as the clergy, who had otherwise injured the study and thwarted the progress of architecture by undue interference in the style and design of ecclesiastical structures.

OBITUARY.

MR. THOMAS COLLOT.
ÆTAT 23.

THERE is something so touching in the mere record itself of a young life full of hope and promise closed at the threshold of entrance upon an honourable career, that, even were the object of this notice wholly unknown among the architectural profession in Dublin, we could scarcely pass by without comment so sad a circumstance.

In a small community such as the architectural one in Dublin, where there exists in a remarkable degree personal intercourse and genial intimacy among its members little known in other towns, the removal by death of ever so humble and unassuming a member of it is felt by many as a personal or household loss would be.

Mr. Thomas Collot, who died at Sandymount on the 15th ult., at the early age we have recorded above, was, it is true, but standing at the entrance upon a noble profession, yet had found time in his short life, by his industry and ardent pursuit of his art, to attract the attention and esteem of many older members. Untiring industry, love of his art for art's sake, love of work for work's sake, modest diffidence of his own powers and acquirements, a deep appreciation of the wide field of knowledge on which he would enter, earnestness, an honest frank nature, and a genial disposition,—these were the qualities which one recognised as the stuff of which a good architect and useful man might be made, and which won the regard of older workers, attracted by the enthusiasm and willing industry of so hearty and kindly-tempered a student and assistant. Mr. Collot, in the short period that followed the completion of his articles, gave assistance in the offices of several architects. In each and all of them where he was known his untimely removal is sincerely felt. He had been ever known as of a hardy frame and apparently robust health. In the summer of last year, however, the insidious inroads of consumption suddenly developed themselves, and, after a lingering of some months, brought a life that promised so hopefully to a close. Were the qualities and disposition of this young gentleman more widely spread, did others emulate his cheerful industry and blameless life, we would hope to see more worthy men and good architects arising from the ranks of our students. We cannot but express deep sympathy for the members of a family who have lost one of whom they might justly be so proud and hopeful. A higher Wisdom has, however, shaped the future otherwise than they or we—shortsighted—would have forecast.*

THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held on Monday evening. The Rev. Prof. JELLET in the chair.

Mr. C. R. C. Tichborne, F.C.S.L., presented a report on "The Molecular Dissociation by heat of Compounds in Solution," for the investigation of which subject the Academy had made a grant of money. He said that dissociation, as the splitting up of compounds by heat had been termed, had been investigated in connection with substances in the gaseous condition, but very little, however, had been done as regarded chemical compounds in solution. The laws that applied to gases equally applied to liquids, compounds with slight modification. However, the phenomena

were much more difficult of observation from their hidden nature. He considered some of them the most important cases from a geological point of view, particularly one well-known and analogous group—namely, iron, chromium, and alumina. The dissociation of the iron compounds by heat had been investigated by M. Debray, of Paris, but attention had previously been drawn to these phenomena by Mr. Tichborne. He now found, as might be supposed from analogy, that the compounds of chromium and alumina were capable of splitting up by the action of heat, only in a less marked manner. At ordinary pressure it required the lime or electric light to observe some of these molecular changes. But, at a pressure of nine atmospheres, permanent decomposition was obtained, which in some cases resulted in the formation of anhydrous oxides of the metals.

The Rev. Dr. Reeves read a paper "On the Irish Tract, by Oengus, the Culdee, on the Mothers of the Saints of Ireland." His object in bringing it before the Academy was to have the tract printed in their proceedings. The tract contained principally the names of women whose sons had occupied high position in the early Irish Church, and was important in a philological and historical point of view.

THE ARCHIMEDIAN SCREW PROPELLER.

At the meeting of the Institution of Civil Engineers, London, on the 18th ult., Sir F. Knowles, Bart., M.A., F.R.S., read a paper on "The Archimedian Screw Propeller, or Helix of Maximum Work," of which the following is an abstract:—

In considering the construction and action of the Griffiths' Screw Propeller, the author of this memoir was struck by the fact, that the blades worked in great part in the lateral streams of the water, and had no action in the dead water behind the sternpost, where power applied ought to be the most efficient. Again, in the common screw propeller, at all points near the axis, the power was almost wholly employed in churning the water, and in producing vibration by alternately lifting and depressing the stem, which no doubt induced Mr. Griffiths to limit the extent of his blades to points without that space. These considerations led to an endeavour to devise some form of blade which should be free from that imperfection, and yet on the whole possess the feathering property of the Griffiths' screw. But no particular form presenting itself which on principle could be pronounced preferable to any other form, the author decided upon proceeding to an *a priori* solution of the question, and assuming the existence of some best form, he was ultimately led to propose this problem, "What is the form of the surface of the Screw Propeller of which the 'work done' is the greatest possible?" The complete solution of this problem was the subject of the paper, and the following was an outline of the methods employed, and of the results obtained.

Referring the required surface to three rectangular co-ordinates x , y and z , one in the axis of rotation, the other two in the plane of rotation, the author first obtained a general expression for the total 'work done' by the blade in propelling the ship, in the form of a double integral in terms of the co-ordinates x and y and of the partial differentials of z with respect to each of them, of the speed of rotation of the blade, and lastly of the speed of the ship. As this integral was to be a *maximum* for all points of the surface sought, it must be treated by the known methods of the Calculus of Variations. This done an equation of condition was obtained, which, by the performance of the operations indicated by the symbols, led to an equation involving two factors, each factor being a partial differential equation between the three co-ordinates of the surface. The first of these being integrated gave for its solution the whole family of ordinary helices which were the surfaces of *least* work.

The second factor was the differential equation of the required surface, the treatment of which was given in the paper *in extenso*. It led at once, and very simply, to an equation analogous to that of the common helix ($\tan. \theta = \frac{a \tan. a}{r}$) namely, $\tan. 2\theta =$

$\frac{a \tan. 2a}{r}$ From this it was at once deducible, that the surface of the blade at the axis cut the plane of rotation at an angle of 45° , while the common helix cut it at 90° , and therefore acted powerfully in the dead water to propel the ship, just where the common helix had no propulsive power. It was proposed to call this surface the hemi-helix, or hemi-angular helix.

The paper then proceeded to determine the pressure of this blade upon the vessel in the direction of the keel, and thence the whole circumstances of the ship's motion. It was found that there was what was called "a slip," as in the case of the common helix. The author objected to this term, as involving a fallacious theory of the action of the screw, —in effect a denial of the equality of action and reaction. In order fully to expose the fallacy, the motion of a ship impelled by the common helix as a case of variable motion in a resisting medium was investigated, and, from the identity of the conditions and of their algebraical expressions it was proved that what was called "slip" of the screw was neither more nor less than "the ratio of the difference between the velocity which the ship would have in a non-resisting medium and its actual terminal velocity in the water to the former velocity." It was proposed, therefore, to substitute for this objectionable expression the term "ratio of resistance," or "relative resistance," as accurately representing the real phenomena, and measuring the efficiency of the given screw in propelling the given vessel.

The author was thus further enabled to explain what had been called "negative slip," and to assign its origin to the joint action of wind and steam, it being impossible in the case of steam alone.

CORRESPONDENCE.

ARCHITECTS' CHARGES.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—You are at liberty to publish the enclosed document as an attempt to amend the present scale to meet cases constantly arising in practice, and which, if generally adopted, would prevent disputes. Those who wish to make use of it in their business may obtain any number of copies, at their own expense, by applying to Mr. Yonge, printer, 24 Great Smith-street, Westminster, S.W. Many architects in England now use it in preference to the scale of the institute, and those who are not surveyors omit the latter part. If more generally adopted, lawyers would have less to do with architects. X.

Proposed Amendment of the Scale at present in use amongst Architects.

ARCHITECTS' CHARGES.

The charge for the design and superintendence of new buildings, except as hereinafter mentioned, is a commission of 5 per cent. on the total cost of the works; besides which, all travelling and other incidental expenses, such as stationery, postage, lithography, &c., actually incurred by the architect, are to be paid by the employer, who is also chargeable for time occupied in travelling, when the work is at a considerable distance and the outlay thereon small in proportion to the time involved in inspecting the work.

But for all works in which the art required is of a high kind, and the expenditure mainly for skilled labour and not for materials, *e.g.*, in designs for the furniture and fittings of buildings, for their decoration with ornamental enrichments, sculpture, painting or mosaic carving, stained glass, and other like works requiring expensive drawings, the charge to be not by way of commission on the cost, but according to the time occupied and expense incurred.

When such works are not designed by the architect, a commission of $2\frac{1}{2}$ per cent. to be charged for arranging with the artists or tradesmen and directing the work generally.

* Mr. Collet was last year the winner of the silver medal of the Royal Institute of the Architects of Ireland, and some of his drawings have illustrated our pages.

The special direction and selection of all such works as baths, plumbing ironmongery, ironfounders' articles, pumps, heating apparatus, bells, lifts, grates and chimneypieces, patent shutters, and other similar fittings when separated from the general contract or requiring special drawings and minute specification, to be charged by a commission of 10 per cent. on the total cost. In the selection and purchase of these articles the architect will use his best efforts to obtain the most favourable terms for the employer. Any trade discounts or commissions allowed on them to be credited to the latter by the manufacturers when the goods are charged direct to the employer's account, and are paid for by him and not by the builder.

In works under £500 in amount, the commission to be increased by scale, varying from 10 per cent. for works under £100, to 5 per cent. on amounts above £500.

The commission to be reckoned upon the total cost of the works, valued as if executed entirely by labour and of new materials provided by the builder. All credits given by the builder for old materials and all old materials worked in, to be treated the same as cash expended.

The commission is to be charged upon the whole value of the work executed, with the addition of a reduced percentage upon any omitted works designed but not executed.

Payments on account to be at the following rates, viz., half the commission on the signing of the contract or on completion of the drawings ready for same, and the remainder by instalments proportioned to those paid the builder or other tradesmen.

All travelling expenses, including hotel expenses and cab fares, are to be charged extra, and, with all other disbursements, to be repaid as incurred, if required.

Should the employer, after having agreed to a design, and had the drawings prepared, have material alterations made, an extra charge may be made according to the time occupied in such alterations by the architect or his assistants.

The percentage does not cover professional services in connection with negotiations for site, attendances to determine same, preliminary surveys, and levels, surveys of old buildings, valuations, arrangements respecting party walls, boundaries, or right of lights, nor services incidental to arrangements consequent upon the failure of builders whilst carrying out work, or attending at courts or arbitrations to adjust disputed accounts, attendances on solicitors relative to contracts, &c.; but all such services are to be charged for in addition, the basis for charge being the time employed.

For works in the alteration of premises the rate of commission to be increased to $7\frac{1}{2}$ per cent. for works over £500 in amount, and 10 per cent. on works below £500 in amount.

If the architect should have prepared preliminary drawings sufficient to explain a design, the charge is $1\frac{1}{4}$ per cent. on new works costing over £500, and on other descriptions of work in like proportion, i.e., one-fourth the full commission.

If the architect should have drawn out the design, with plans, elevations and sections, ready for estimate, the charge is half the full commission, i.e., $2\frac{1}{2}$ per cent. on new works above £500 in amount, and other descriptions of work in like proportion.

If the architect should have in addition, prepared specifications, the charge is half per cent. extra to the above, including procuring tenders if required.

If the architect should have prepared the enlarged details, the charge for these to be $\frac{1}{2}$ per cent. in addition to the above.

These charges to apply to all cases where the commencement of the works is postponed or abandoned, or when portions of the works designed are omitted. The commission to be taken on the average amount of the three lowest tenders; where no tender has been accepted, or in the absence of tenders, on the amount of the architect's estimate, or on a fair valuation.

When works in progress are abandoned or suspended from any cause for a considerable time, the architect will be entitled to the full commission on the same as if executed, but will render all needful services for their proper completion, if required, at a future date, without further charge, if he is in a position to do so on the resumption of the work.

All of the following requirements for buildings are included in the ordinary charge of 5 per cent:—

One set of preliminary sketches (exclusive of finished drawings or perspectives).

Working drawings and specifications sufficient for an estimate and contract.

Detailed drawings and instructions for execution.

General superintendence of works (exclusive of clerk of the works).

Examining and passing the accounts (exclusive of measuring and making out bills of extras and omissions when performed by the architect).

No additional charge is made for such a rough estimate as may be obtained by cubing out the con-

tents. If a detailed estimate be required by the employer, an extra charge to be made for it as per the measuring rates, or a quantity surveyor to be employed to prepare same.

All the above charges include but one set of the drawings and specifications; it being understood in all cases that the architect is paid for the use only of the original drawings and specifications, and that they remain the property of the architect. Perspectives and finished drawings for the client's use or for deposit, and duplicates and extra copies, when specially required or actually necessary for any purpose, such as for use of clerk of works or district surveyor, to be charged for separately at reasonable rates in proportion to the time and cost involved.

The employer will be entitled to one copy of the general drawings and specifications at a reasonable price at any time when required by him after payment of the architect's account, computed at above rates according to the state of the work at the time; and he will be supplied with a plan, shewing position of drains, &c., underground on completion of the works free of charge. But if such copies of the drawings, &c., shall have been supplied by the architect to the employer before the works are begun, and are afterwards used by the employer in the erection of the works designed, unless by consent of the architect, the latter will be entitled to the full 5 per cent. on the total cost, as it is only reasonable that the architect should be employed to carry out his own designs, except in special cases where it is distinctly agreed otherwise.

For inspecting buildings, not designed by the architect, during their progress (so far as may be necessary to ensure the conditions being fulfilled) and finally certifying for same, the charge to be 1 per cent. on the value of the work, with travelling expenses if any.

In all cases where a design has been accepted, and the works actually commenced, the employer shall not be at liberty to dismiss or supersede the architect, nor shall the architect be at liberty to retire from or resign the conduct of the works. In case of the death of the architect, or his incapacity to discharge his functions in consequence of illness, a proper and competent substitute to be provided by his executors or agents, or the value of the services unperformed to be allowed to the employer in case of neglect in appointing such substitute.

[The proposed charges for Surveyor's Work will be given in our next.]

THE PEOPLE'S PARK, BELFAST.

THE opening of the People's Park, Ormeau-road, on the 15th ult., gave opportunity for a demonstration of an enlivening character. The trade and friendly societies with their bands, and headed by the borough members, went in procession through the town from Carlisle Circus. The ground has been leased by the Town Council from the Marquis of Donegall, and comprises about 180 acres, one-half of which will be laid off for building. It is not expected that this great boon conferred upon the working-classes will draw heavily (if at all) from the pockets of the ratepayers, inasmuch as the rents to be derived from the ground are likely to cover all expenditure. "People's parks," says a contemporary, "go on increasing over the kingdom." We ask, Why should Dublin not throw open her Stephen's Green for the recreation of the working-classes? What vested rights should be allowed to interfere in such a case, when the health and well-being of thousands of toilers demand such a concession? We have just learned that, by the obstinacy of a "resident," the Royal Agricultural Society will not be able to hold their annual horse show within its enclosure, a site found peculiarly adapted for the purpose in former years.

The following remarks were made by the Mayor of Belfast on the occasion of the opening ceremony:—

"There could be no more legitimate expenditure of money, after education, than in providing free and healthy recreation for the people within easy reach of them. This park is not so central as could be desired, but when it will be surrounded with buildings, there will be some improvement. Tramways from the

central station will accommodate those who wish to get out, or, perhaps, many of the working classes will be enabled to reside in this locality. Anything that changes the scene, relieves the wind, and attracts people from vicious and improper associations or pursuits, is beneficial. It is peculiarly beneficial to those who are deprived of the privileges of wealth—to the poor and the artisans. I am glad to see so many of the working classes here to day. I hope, and am certain, that the co-operation does the same, and that this park will prove a source of enjoyment and benefit to them. But I don't think this is all that should be done for them. They want not only places to take pleasure in, but they want houses to live in, in decency, and comfort, and health. This park will be all the more valuable if we can get healthy people to come and enjoy it. Everyone is interested in this—the employer as well as the workpeople or *employés*. We get better work out of a healthy and contented people. I have always found it so, and have striven to provide my workpeople with the best houses, and to induce them to keep them in a state of cleanliness; and also to afford the opportunity of having their children educated with religious advantages if they wish, and also the benefit of news-room and library. I have always seen that an educated, intelligent workman does better work than an ignorant one, and education is the right of every one. The Government is doing its duty in this matter; but every employer has a special duty to discharge to his *employés*. I cannot help feeling that I owe much to my workpeople, and that they are entitled to share in my prosperity and in some of its blessings. Could we all more generally recognise this fact, we should be even a more thriving and happy community than we are."

BOOKS RECEIVED.

Journal of the Royal Historical and Archaeological Association of Ireland. January, 1871.

THE first quarterly part of this journal for the present year has reached us. In the opening pages we are presented with an account of the proceedings at annual general meeting. Next we have "The Spanische Letter" written by "Don Dermicio Cartie" to Florence MacCarthy in 1660, with translations and notes; the ancient church and well called Toberkeelagh, on the western shore of Lough Mask; and notes on ancient settlements in West Galway. Miss M. Stokes contributes a very interesting paper on "Irish Art in Bavaria." Mr. Wakeman's "Remarks on the Crannog at Ballydoolough" are illustrated with nine wood engravings and a photo-lith. The remainder of this part, to the extent of seventy-seven pages, is occupied with a historical romance entitled "Siabur-Charpat Con Culaind," from the celebrated "Lebor na h-Uidre," an ancient Irish manuscript. It has been translated and edited by J. O'Beirne Crowe, A.B. To Irish students and antiquarians it will no doubt be valuable.

MISCELLANEOUS.

POST OFFICE ORDERS.—The new regulations regarding post-office money orders will come into force on this day. The following will be the scale of charges:—For sums under 10s., 1d. commission; of 10s. and under £1, 2d.; for £1 and under £2, 3d.; for £2 and under £3, 4d.; for £3 and under £4, 5d.; for £4 and under £5, 6d.; for £5 and under £6, 7d.; for £6 and under £7, 8d.; for £7 and under £8, 9d.; for £8 and under £9, 10d.; for £9 and under £10, 11d.; for £10, 1s. The above scale does not apply to orders issued on the colonies and foreign countries, the present charges on which will remain unaltered.

By the treaty which has just been concluded between Canada and British Columbia the Confederation of British America now stretches, we are told, from the Atlantic to the Pacific Ocean, and contains a larger area than the United States. The Dominion undertakes to pay a subsidy to Columbia for the payment of its officials, and it also engages to construct a railway connecting the Canadian network of lines with the Pacific Ocean. This is to be finished within ten years. British Columbia grants a strip of land twenty miles broad all the way the line is to run, as its contribution to the expense of the undertaking, and Canada guarantees a million and a-half of dollars a year, being the interest at five per cent. per annum on 25,000,000 dols. The length of the line from Lake Nipissing to the Pacific will be about 2,500 miles, of which 700 miles are in Ontario.

LAYING VENEERS.—Two methods are ordinarily resorted to in veneering such curved surfaces as occur on the pillars and blocks of tables, fronts of sideboards, or on mouldings in general: the one is to strengthen or support the natural tenacity of the veneer on its being bent; the other, to increase its flexibility. The former is effected by gluing on the outside of the veneer canvas or calico, to preserve it from fracturing under the unequal pressure of the caul while the veneer is being pressed down; the latter, by subjecting the veneer to the action of moist steam, a process similar in principle to that employed by shipwrights in bending their planks to the required curvature. Veneers having a strong roe or curl, from the extreme irregularity of their grain, suffer by being subjected to a sharp heat or to extreme moisture, their contractions and expansions being so very unequal that they speedily fracture; accordingly, they require to be carefully covered with canvas whenever they are laid on a curved surface, and in all circumstances must be cauled down. When the veneer for any surface consists of several pieces, and these marked by a waved or extremely irregular figure in the wood, as frequently occurs in rosewood, or without any decisive indications of grain or direction of fibre, as in Amboine wood, yew tree, oak root, or bird's-eye maple, it is customary, in forming the joints, to follow the prevailing direction of the figure in the wood, or to join the pieces together in lines which are least likely to be detected by the eye in the finished work. To effect this, the edges of the veneers are lapped on and glued to each other; after the glue is dried, a fret-saw is made to pass through both thicknesses together, tracing by the cut the intended line of the joints, which, on the superfluous wood on both pieces being chipped off, are quickly and perfectly formed. These waved joints in the veneers, when the required conveniences are at command, are better, and as expeditiously made, by this method, as those that are straight and wrought by the plane; they are, besides, often more economical than the others in the saving of veneer, and, under the circumstances supposed, always more elegant. The joints, after being prepared in the above manner, are put together in the dry state, and connected by slips of cloth glued over them. On these being dried, the veneers are then cauled down. Veneers are laid by two methods—by the hammer or by caul. Hammering is a process of easy application when the veneer is of a mild and pliant nature. For some work this method is more convenient and expeditious than cauling—such as for border finishing, for slipping, for cross or feather banding, the laying of sweeps, and generally for small work. Some extensive surfaces, not otherwise easily accessible, are best to be done by the hammer; such as the tops of sideboards, or commodes, when these are clamped to thickness from under. Hammered surfaces are not generally so secure in standing as those that are cauled, in consequence of the veneer requiring to be moistened on its upper side with water or thin glue, to counteract its tendency to curve up from the ground, and also to admit of the hammer gliding easily over the surface. The handle is fixed into the head, low down, so as to give the operator greater leverage power over it. A blade of steel, one-eighth inch thick, is inserted into the head below, having its under edge rounded along its length, so as to concentrate the pressure exerted on the hammer, and assist the smoothness of its action. The form given to the head above furnishes at once a good hold and an easy rest for the hand. In laying a large veneer with the hammer, the assistance of several hands is required; the ground and veneer are gently heated previous to the gluing; the glue is then spread on both, and the veneer, on being laid on the ground, is coated over with thin glue, and rubbed down with the outstretched hands of several persons.—*American Artizan.*

THE HEALTH OF DUBLIN.—In the Dublin Registration District the births registered during the week ending April 22nd, amounted to 144. The average number in the corresponding week of the years 1864 to 1870 inclusive, was 169. The deaths registered during the week were 185. The average number in the corresponding week of the previous seven years was 153. Two deaths from small-pox were registered. Two deaths were caused by scarlet fever, and 1 by diphtheria. Nine persons died from fever. Whooping-cough proved fatal in 7 instances, and croup in 3. Seven deaths were referred to convulsions. Thirty-four deaths resulted from bronchitis, 4 from pneumonia or inflammation of the lungs, 3 from asthma, and 1 from pleurisy. Three deaths were referred to apoplexy, and 5 to paralysis. Heart disease caused 8 deaths, and 1 to hepatitis or inflammation of the liver. Phthisis or pulmonary consumption killed 36 persons, mesenteric disease 5, hydrocephalus or water on the brain, 4, and scrofula, 1. Four deaths were the result of violence. Forty-three of the persons whose deaths were registered during the week were under 5 years of age; and 32 were aged 60 years and upwards.

THE CURRAGH CAMP.—During the period of his command in Ireland, Lord Strathnairn caused several small plantations to be made in the vicinity of the huts at the Curragh Camp. Outlying pieces of ground which did not fall in with the lines of the Camp were planted with larch, fir, beech, birch, poplar, and ash—trees which grow luxuriantly in the cultivated grounds bordering on the Curragh edge. The young plantations have succeeded admirably. They have just been carefully cleaned and dressed, and in a very few years they will not only give needful shelter in the Camp, but add greatly to the cheerfulness and beauty of its appearance. Encouraged by the success of Lord Strathnairn's plantations, the military authorities at the Curragh have marked out, and are fencing in with iron standards and wire railing, a large piece of ground, nearly ten acres in extent, at the south-western side of the Curragh, near the police barracks on the road to Brownstown. The site is somewhat undulating, and offers an opportunity for the display of taste in landscape gardening, and the artistic grouping of deciduous and evergreen trees. The soil consists of a rich alluvial deposit, varying from one to several feet in depth, with a substratum of limestone gravel. No drainage works will be required. As the soil has not been disturbed for several hundred years, its nutritive qualities must be great. At present it is covered with short crisp grass and a few clumps of furze, in all the beauty of fresh flower. The soldiers' gardens, also attributable to the care of Lord Strathnairn, are all being set in order for the summer and autumn. These gardens are placed in the open space between the square of the lines, and have proved exceedingly productive, and a source of interest and amusement to the troops. They supply a large quantity of fresh vegetables, and as there is scarcely a regiment which does not contain in its ranks a few practical gardeners, considerable taste and skill have been shown in the arrangement of the various plots. It will be remembered that Lord Strathnairn instituted the soldiers' gardens, which have proved so profitable, and have afforded such wholesome occupation to the troops in India during their hours of leisure. Since the Curragh has been placed wholly under the control of the authorities, it has greatly improved in appearance. Probably in a short time the plantations will be extended towards the south and east, where in many places there still exist traces of ancient cultivation. It is unnecessary to add that the improvements already completed or commenced do not trench upon the ground set part for the use of the Turf Club, or on the vast area appropriated for reviews or manoeuvres of the troops.

BREAKING OF RAILWAY AXLES.—Mr. W. Bridges Adams, in a paper published in the *Journal of the Society of Arts*, says that the cause of the breakage of railway axles is to be found in the fact that they are strained beyond their powers, not by the load, but by imperfect structure of the vehicle they are attached to—imperfect, possibly, originally, but commonly by violence in use. "The running is wringing the neck of the axle." With a view to lessen lateral friction of the wheel flanges as much as possible, it has been customary to keep the axles as near as possible together. This, if the bodies be long, involves "hogging," and oscillation, with a bad distribution of the load. Other things being equal, the nearer the axles are to the wagon end, the steadier they will be; but then flange friction increases with the length of wheel base, and a remedy must be provided for this. Supposing that a train of wagons were built perfectly true at the outset, for a straight line, the multitude of longitudinal shocks would soon set the wheels out of truth, and so the question arises, whether it be possible so to construct them, that diagonal shocks to the frame, giving a permanent set, shall not affect the true running of the wheels; and next, whether wagons may not be so constructed as to dispense with the loose coupling, which is a material source of breakage to couplings, and displacement of the wagon frames? We think it is. Desirable as it is to point out the causes of the defects, it is still more useful to point out the remedy.

WORKING BY THE DAY.—It makes a difference in the actions of a man whether he is working by the day or by the job. He who works by the day is a pleasant and edifying object. Here, for instance, is a man who has come in to repair the gilt-lettering on your office door. He is working by the day. There is no undignified haste about his movements. He gazes upon the work laid out for him with a critical eye, but he does not hurry. He evidently has not considered the ant, and the busy bee he holds a contempt for. You gaze upon his sluggish grace admiringly, only your pleasure is marred somewhat by the reflection that he is working for you, and by the day, and you mildly intimate that so slight a work will, of course, soon be finished. The man gives only a negative assent to your proposition, and does not hurry himself. Time does not bang heavily on his hands. He is working by the day. He does not appear at all troubled by the accidental breaking

of the glass, and the consequent expense and annoyance. He bears up under your misfortune with surprising grace. He sits down and rests. He is a philosopher and sybarite. And, finally, when your faith in that old proverb which claims that "more haste" is accompanied by "less speed," is totally ruined, and the cost of your patching has exceeded that of the original work, he departs from you with the same bland demeanour and pleasant smile—a little Mephistophelian, perhaps—which he has worn from the first. It is very pleasant and very expensive to have work done by the day.

The Old Bond-street Gallery (25 Old Bond-street, W.), after having been occupied by the Committee (with the Duke of Wellington at their head) of the Exhibition in aid of the distressed peasantry in France, is now about to open its doors to hold the usual Summer Exhibition of works by British Artists, for which purpose this gallery was established. It has been determined by the Committee, among whom is Mr. Ansdell, R.A., that pictures should be received on the 15th and 16th of May, and the Exhibition opened to the public on the 29th May. Numerous and many distinguished artists have promised to exhibit, and it is believed that it will be one of the best exhibitions in London. Mr. G. F. Chester has consented to act as hon. secretary, of whom all particulars can be obtained at the gallery.

FORGERY OF BANK NOTES—CAUTION.—Persons changing bank notes should be on their guard, as it has been ascertained that some £5 notes of the Northern Banking Company, Belfast, have been converted into £10 notes, and are now in circulation. Fortunately, the mode of detection is easy—in the genuine £10 note the word "Ten," which is found at each of its sides, is formed of old English characters in an oval, whereas in the altered note, the word "Ten" is in Roman letters, inscribed in an oblong square. Another discrepancy is that the names of the Bank's branches round the edge of the genuine £10 note are printed in an open or white letter, but in the altered note they are in a black letter. By carefully noting these points persons receiving any £10 notes of the Northern Bank may at once detect the forgery.

TRACING PAPER.—Mr. Thomas Edmondson, 10 Dame-street, has sent us a sample book, neatly got up, of drawing and tracing papers, tracing cloths, &c., supplied by him. They appear to be of superior quality, and the prices quoted moderate.

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House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have
used both the sorts of Cement manufactured by your firm, and
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either of your firms, to be equally good. I know no difference,
chemically or practically, between them; and I should
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other. You are at liberty to use this note, if you think it ne-
cessary.—I am, Dear Sir, your obedient servant,
Messrs. White & Son. (Signed) WILLIAM TITE.

From R. O. MINNIE, Esq., Surveyor to Board of Ordnance, London.
War Office, Pall Mall, London, S.W.,
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(Signed) R. O. MINNIE, Surveyor.

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The Irish Builder.

VOL. XIII.—No. 274.

IRISH BUILDING MATERIALS.

TO THE PRESIDENT, VICE-PRESIDENTS, AND ASSOCIATES OF THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

"Why is it that Dublin cannot produce, for love or money, a decent, passable, ordinary brick?"—JAMES H. OWEN, Esq. M.A., President, &c.



THROUGH what journal in Ireland could I more suitably give an answer to the interrogatory of Mr. Owen than through the pages of the IRISH BUILDER? Many have asked the same question before in other words, but no one that I wot of who has asked it possessed the same influence of rendering the question for the future unnecessary as does the President of the Irish Institute of Architects. In the paper read by Mr. Owen at the general meeting of the Institute, and published in the last issue of the IRISH BUILDER, some excellent observations are made on the subject of wall-plastering, and the careless manner in which the materials are mixed; and then passing on to the matter of bricks and brick-making, a belief is expressed that Dublin must have at one time manufactured her own bricks extensively. Mr. Owen also adverts to the vast amount of old red place bricks which are to be met with in the heart of many walls of the old houses of Dublin. It is doubted that Dublin would import the rubbish that is generally met with in old buildings; and, while it is acknowledged that good bricks must have been made in Dublin, Mr. Owen laments that he cannot afford fuller historical information upon the subject.

I will endeavour, as briefly as possible, to throw a little more light upon the matter, and will commence by asserting, and afterwards proving, that Dublin, before the period of the Union, manufactured good bricks, and good pottery and tiling also. I will also be able to prove that better limestone was burned, better stucco and terras mortar were made, and that building materials in any and every quantity and quality existed.

Good red-brick houses were built in Dublin in the reign of Charles II. and of William III., and continued to be built during the reign of Anne and of three of the Georges. House building, both of native brick and stone, was most rife during the short-lived existence of the Irish Parliament, but between the year 1801 and 1810—in one short decade—there was a terrible collapse, quarries ceased to be worked, and several brick fields and tile manufactories were given up for want of trade in the first decade of the present century. Several hundred of our building operatives were forced to emigrate to England and America. Our builders became few, and our architects fewer; and what few there did remain lost faith in themselves, their country, and the building materials by which their fathers built up their reputations and their fortunes. In the days of Swift good bricks were burned in the vicinity of Dublin in many places north and south, from Merrion and Sandymount to Clontarf and Howth; and at Mullinahack, in the middle of the last century, a good manufactory existed, supplied

with potter's clay both from Merrion and Baldoyle, from which black crocks, pan tiles, flooring tiles, flower pots, sugar moulds and drip pots for sugar bakers were turned out in vast numbers of most excellent quality. The clay from Merrion and Clontarf was mixed in equal quantities for making pitchers, and this mixture was considered an advantage and preferable than using the north and south of Dublin clay singly. As far back as the year 1740 or previous, the Baldoyle clay was extensively used for pottery purposes in Dublin, but long previous to this the clay of Merrion and Clontarf was in use. A vast amount, however, of the bricks made in the vicinity of Dublin were bad, not from the reason of the clay, but because the clay was not properly treated. The red brick manufactured in the last century in Dublin were neither so red nor so compact as those made in England in the counties of Middlesex, Kent, or Surrey. Before the recent improved method of brick-making came into practice, the methods were slower and more painstaking in the preparation. The brick clay very often, in fact generally, used in Dublin contained a mixture of calcareous earth, otherwise called limewash. This, after burning, slackened when subjected to moisture, and of course spoiled the manufacture. The Dublin brickmakers, and other provincial ones also, worked up their materials too quickly. The brick clays in England were dug up and exposed for some months to the air, for pyrites are often found in large quantities in some districts. Such clays are full of vitriolic salts, and it is necessary to expose them to the air and weather for a time to rid them of that body, otherwise they are hindered from setting in the kiln, and they will afterwards sweat, and eventually moulder and decay. A neglect of these precautions, and also a carelessness in not seeking out the proper clays, rendered the Dublin brick manufacture of recent times a failure. Were I standing in Dublin to-day instead of in London, and if any honest company was formed, determined to begin brick-making as a branch of native industry, I could point them out many fields of good brick clay, where fortunes might be made with small capital and industry.

It is not, however, alone in brick or potter's clay that Dublin is rich; she has abundance of all kinds of building stones, hard and soft: marble,—yes, I repeat it,—granite, calp, limestones in numbers, and limestone gravel, sands, gravel, ochre, and painting earths, rotten freestone of different kinds, some suitable for rough plastering material or for scouring purposes and domestic uses.

In Newcastle, County Dublin, there is a limestone gravel, much used in the last century for roads and terras walks, possessed of good binding and cementing qualities; also at Greenhills and in Kingstown,—in the latter place there are large rocks of it. Large quantities of gypsum were brought from the neighbourhood of Lisburn to Dublin in the last century; it made excellent plastering material. It was used extensively for stucco work in many of the old city mansions and noblemen's dwellings in Dublin. When properly prepared it was not liable to crack, and it was considered superior to that which was imported for stucco from France. George Semple, the architect of Essex Bridge, utilised this Irish gypsum for the purpose of building in water, and he considered it more durable under water, as a cement, than above it. It was used also for scouring silver, and

sold by the druggists of Dublin for that purpose. Near Carrickfergus there was a redder sort of this gypsum, which was also much used for similar purposes.

In several places in the southern division of the County Dublin there are clays and sands admirably fitted for the purposes of both builder and iron founder. Sand for foundry purposes is plentiful north and south of Dublin, and formerly quantities of it was raised at Miltown, along the Dodder, and at Knockmaroon. In these and other places sand, fine and coarse, suitable for casting sheet lead or metal, was also formerly obtained. Admirable founders' sand is still obtainable in Dublin, and one of its properties once boasted of was its vitrification of the lead, by which a fine paste was made for glazing earthenware, the proportion being one part of sand to two of calcined lead.

Slate quarries were worked in the last century on the south side of Dublin, stretching into the County of Wicklow. Though there were many districts where slaty rocks were found capable of being split, yet none of them proved of a very good description. Much of what was quarried was used, however, in different situations for covering in place of tiles. The Dublin slates lacked the hard qualities necessary to ensure durability, they absorbed too much water, and did not split so evenly, nor could they be produced so thin as the imported ones. It is quite possible that on a careful survey a slate strata might still be found in Dublin or Wicklow, capable of affording as good a quality of material as what we import.

Ragstones are imported into Dublin from Wales, and were also a century and a-half since; yet along the shores of the River Dodder these stones abound, and around Old Bawn. The Dublin shoemakers formerly used this stone for sharpening their knives and awls. The English and Welsh ragstone is an article in general use among the operatives of the building trades for putting a fine edge to their tools after they have been first ground upon a coarser stone. A brown description of ragstone exists about Rathfarnham, and a bluish description about Dunsink. Stones for polishing brass (rotten stones), iron, copper, silver, wood, and stones for other coarser materials are to be found in abundance in the County of Dublin, and a century and a-half since they formed an article of Dublin export to England. They are of various colours north and south of Dublin, Rathfarnham, Castleknock, Cloghran, Baldoyle, Malahide, and various other places.

Some of the Dublin limestone approaches that of marble in hardness, and is susceptible of a good polish. At Sutton, near Howth, a good description of this kind may be found, well fit for building purposes. It can be manufactured into a strong cement, and will be found quite as good for using under water as any of our modern hydraulic cements. A whiter and softer sparry sort makes very good common plastering material, but it is not so good for a cement as the grey sort. It may also be burned and utilized for manure.

Quantities of the above descriptions of limestone were sent formerly from Howth into Wicklow, and a black sort from Carlow, which was once considered one of the best limestones in Ireland. Irish lime, two centuries ago, was in good repute, and was imported in quantities by the Dutch, who considered it superior to any which they could obtain elsewhere.

I have alluded to Irish marbles. It is well

known elsewhere in Ireland besides Dublin that this description of building stone exists east, west, and south in large beds, and of superior qualities and colours. Dublin, though not rich in marbles, is not entirely destitute of the material. It is a description or subdivision of our limestones, and it may be found at Howth, Raheny, Kinsealy, Donabate, and near Malahide. There is a black kind, variegated with white, which will take a fine polish, and I question if it is much inferior to the far-famed Kilkenny marble. I have no doubt but marble quarries could be worked and made to pay in Dublin; but any attempts that were made in the last century were mere amateur ones, and they were not prosecuted with earnestness. The deeper you sink the better and harder the marble will be found. Flags were exported from Dublin to London in the early part of the last century, for steps and flagging purposes.

I might enumerate many other materials once in high repute in Dublin, but now extinct. What Dublin failed to supply for her own uses, or for other countries, there were other parts of Ireland possessed of the requisite material. According to Sir William Petty, we had formerly alum works in Ireland; and Lyster, who had a good knowledge of fossils, says he received an alum gleebe from Ireland. Dr. Peter Lombard, Primate of Armagh, mentions in his work, "*De Regno Hiberniæ*," &c., that glass and earthenware were made in his time. Lombard was born in Waterford in 1560, and died at Rome in 1625. He speaks also of quicksilver, alum, vitriol, sulphur, and antimony being found in Ireland in his time. Coal mines were also worked and paper manufactured at the latter end of the sixteenth and the beginning of the seventeenth century. A Colonel Blennerhasset made vitriol from Irish slate in Kerry early in the eighteenth century, but the works were discontinued for want of a market. There were glass works in Dublin in the last century, as well as delft and pottery; and Dublin could also boast of the manufacture of builders' ironmongery, which existed in the Liberties even in the present century.

I now come back to my starting point. Brickmaking was attempted several times during the present century, north and south of Dublin, by persons who knew scarcely aught about brick clays or brick burning, and we need scarcely wonder that they failed, and that the bricks they burnt were mere rubbish. Near Baldoyle attempts were made some years ago to manufacture red bricks; they did not succeed. The clay was not of the best quality; it was not properly treated, and I question if the persons engaged knew their business. Good brick clays, however, exist north of the Tolka river across the whole district of Fingal, free of saline matter or other salts. Another attempt was made to make bricks on the low swamp lands known as the North Lotts, I believe, beside where the old bottle works, known as "Fort Crystal," stood. This attempt turned out a miserable failure. The clay was totally unfitted, but, even otherwise, the clays employed were not exposed for a suitable time to the weather; the bricks were not properly dried or protected, so they burned into rubbish in the kiln.

Is it any wonder why the President of the Royal Institute of the Architects of Ireland should ask, "Why is it that Dublin cannot produce for love or money a decent, passable brick?" Having shown the reason why we have not a good Dublin brick, and having also given proof that we once had a good

Dublin brick, and can have such still, I will next proceed to say to whom Dublin is partly indebted for this sad building want. To the architects, then, of Ireland, save with very few exceptions, Dublin and other parts of Ireland may attribute their want of suitable local building materials ready for use. It has been the practice of many Irish architects during the last half century to decry all native building materials, save what was required for the most common purposes. I speak with candour, for my close contact from boyhood with the architectural and building world in the three kingdoms warrants me in speaking as I do. With every description of limestones and marbles, grauites, freestones, and sandstones at their feet, Irish architects thought it better and considered it more fashionable to recommend Portland or Purbeck, Caen, Runcorn, Bath, Aberdeen granites, and a dozen of other kinds of red, white, and grey freestones. Now, I could prove and point out stone in Ireland with the same properties as the much-used Portland stone. But, leaving Portland alone, let the Irish architects look back for a century and a-half at the magnificent public buildings erected in Dublin of Irish materials exclusively, from basement to roof-tree,—erected by Irish, Anglo-Irish, and naturalised Irish architects, Semple, Ahern, Ensor, Ivory, Cooley, Gandon, Baker, Morrison (father and son), Johnston, and others. These architects, English and Irish as they were, practised in Ireland, and principally in the capital, and the materials they used and recommended were always indigenous to the soil, save where they were overruled. If these men were again practising in Dublin, there would be less stone imported, and I question if there would be any brick. If Irish architects stipulated in their designs and specifications for native material, and recommended it whenever and wherever they could, the building resources, not only of Dublin, but of Ireland, would soon rapidly develop.

I must say with regret that the Corporation of Dublin has done but little within the last thirty years for the building, engineering, and mechanical interests of the capital. Other corporate bodies have acted much the same. Since the uprooting of the old wooden water main in Dublin, foreign metal castings, foreign flagging, foreign paving stones, foreign building stones, foreign bricks, and in many cases foreign workmen have been introduced and patronised to the exclusion of the native boru. Native architects have even suffered, for the evil they encouraged reacted on themselves, and native sculptors and artists have been almost starved out. With the decline of ship-building, dock construction collapsed. The City Council today holds its meetings in what was once the Royal Exchange of Dublin, built by the merchants of the city, by subscriptions raised by a lottery. English and Irish architects were invited to send in designs in 1769. Upwards of sixty of both countries complied, and premiums were awarded to the best. Three Englishmen—two of whom afterwards became *par excellence* Irish practising architects—gained the chief premiums. Thomas Cooley, £100; James Gandon, £60; Thomas Sandby, £50. Cooley's design was adopted, although Gandon's was said to be superior. Thomas Ivory, a Dublin architect, but a native of Cork, was presented with pieces of plate, and so were other Irish and English architects whose merits in the competition were acknowledged. Here is a lesson worthy of imitation for the present Corporation and

merchants of Dublin. A Dublin Main Drainage will soon be commenced. It behoves the architects of Dublin, and the builders and ratepayers of the city, to know what objection exists to the use of native materials in all that will appertain to that work. If the Institute is powerless in this matter, and if its members are dumb, what becomes of the public utility and existence of the body? If it exists for one object more than another, it exists as an association *adscripti glebe* to promote a love for Irish art, and to assist in developing native talent and native building resources. I am among the number who believe the Institute can do this if it only wills henceforth to do it.

There are many of the cognate branches of the building trades could be also assisted to exist and prosper in Dublin, instead of being allowed to gradually die out. Bell-founding, which is long and intimately connected with the history of architecture, still lives in Dublin, and the manufacture is creditable and sustains its credit; so does organ building, and, further in the matter of church ornamentation, no reason exists why Gothic church furniture and stained glass manufacture should not also thrive in Dublin as well as in Birmingham, Newcastle, or London. English merchants are justified in driving trade in Ireland so long as they can find a market for their ware, so it is the duty of those who live by the practice of their art or profession in Ireland to help one another. It is only by doing this, which in honour and justice they are bound to do, they can hope to secure the platform upon which they at present stand from being tilted from under their feet.

My object in sitting down in another country to pen this paper is a sincere desire to lift up the building art of Ireland, to point out the cause why it droops at present, and to show those who may know less of the past history of the Irish capital than myself what was once achieved in Dublin, and may be achieved again if the architectural and building profession is true to itself. There is scarcely aught wanting in Ireland that the most enthusiastic disciples of Vitruvius, Palladio, Vignola, Inigo Jones, or Sir Christopher Wren could desire. Let the architectural profession show an example, and the nobility and gentry will follow, and of course the builders will offer no objection, and the building operatives will be only too delighted to follow suit.

I trust, in conclusion, that the Press of Ireland, as a body, will lend their assistance in making the facts known which are embodied in this paper. It is not a political question, but a vital question, and one that concerns the future well-being of the building trade of Ireland. Silently and unknown to many I have laboured for years to serve the architectural and building interests of Ireland, and to draw attention to her vast and undeveloped building resources; but it rests much with the architects of Ireland whether mine or other men's labours to that end will succeed in effecting a thorough reform in all that appertains to the practice of Building in Ireland.

DUBLINIENSIS.

British Museum,
London, May, 1871.

P.S.—If I find that it is desirable to return to the subject which I have discussed in the foregoing paper, I will do so, for I have only opened the question of Irish building resources, instead of having exhausted it.

THE STONE-ROOFED CHURCHES OF THE ANCIENT IRISH, AND CORMAC'S CHAPEL.*

IF Vitruvius, Strabo, Pliny, Tacitus, Dion Cassius, and Herodian, who professedly or incidentally treat of the domestication of the Irish in their several ages, record nothing but traits of barbarism, incivility, and total want of architecture, where could the Irish acquire ideas of the Egyptian and Grecian styles of building? There must be either a strange conspiracy among ancient writers to misrepresent the truth and deceive mankind, or what is delivered by Stukeley and Irish antiquaries of the wonderful proficiency of the Druids in the arts and sciences is destitute of reality. The latter had absurd systems to support, the former stated matters of fact and notoriety. Impartiality and truth are ever found among those who have no inducement to swerve from them.

O'Connor grants our buildings in the sixth century were mean, and yet he speaks of magnificent ones many ages before, without condescending to explain the occult causes of this degradation and at length final extinction of architecture among us. But this omission is not more remarkable than those on every subject touched on in his dissertations, where a copious flow of words supplies the place of information, and the Leavar Gabhala and Codex Lecanus mislead the reader with a show of authority.

Lynch thinks we had stone houses very early, because Teamor, or the palace of Tarah, is derived from Tea, a house, and mor, a wall. Had any but an Irish scholar and seanachie advanced so foolish an etymology, how loudly would his ignorance of the Ibero-Celtic be proclaimed! Teamor is obviously the great house or palace. But if Lynch's authority is to be depended on, Ireland was but slenderly inhabited before the incarnation; for he records it of Irialus, as a memorable public act, that he cleared sixteen plains covered with wood; and that Eochad Fibherglas and Oengus Olmucad performed similar important services: the inference is easy and certain, that such a country and its inhabitants must be in the rudest state, and that it had more of the ferine than the human species possessing it.

In the eyes of reason and learning, then, how weak and unfounded are the assertions of our natural historians! They boast of extensive buildings and high degrees of civilization above two thousand years ago. "The construction of Eamania," says O'Connor, "forms a remarkable epoch." Not in history, we are bold to say, but in Irish romance; for this was three hundred and fifty years before our era, when the Roman state was in its infancy, and Europe was but thinly peopled by wandering Celts. To find, at this period and in this corner of the world, a nation flourishing in all the arts of peace and settled society, is a tale not to be listened to, much less believed. If the magnificence and splendour of the palace of Tarah were such as described by Keating and his blind followers,—if they continued from its erection to throw a lustre on the taste and opulence of Irish monarchy to the year of our Lord 427,—can any reason be assigned for the silence of geographers and historians on so curious and interesting a subject, or on such unusual power, wealth, and civilisation? Would the Romans—a people intelligent and curious, and who held the dominion of Britain for four hundred and seventy-six years—have been strangers to such a nation? It must instantly be decided that they would not.

The Celts were, as their name intimates, Woodlanders. In forests they found houses, food, and security. Occupied in the chase, and supported by the spontaneous produce of the earth, and, above all, living, as hunters ever do, in families, and these widely dispersed, they never dreamed of stone edifices or felt the want of them. The Firbolgs, or Belgic colonies, who succeeded them, were a very different and more civilised people. Like their brethren in Germany, they dwelt

a great part of the year in natural *souterrains*, or artificial caves; and the number of these discovered in Ireland evinces that they practised the same here, and that they knew very well how to form chambers with dry stones, and arch them over with long, projecting flags. The first Christian missionaries endeavoured to estrange the minds of the natives from their old idolatry by building wooden churches. Thus Palladius, it is said, founded, in 431, three wooden oratories. The year after, St. Patrick erected the church of Saul, in the county of Down. It was called Sgibol Phadrug, or Patrick's Barn; a name at once conveying to us its shape and materials. Conubran, describing the old chapel of Monenna, at Kilsheive, in the county of Armagh, A.D. 630, tells us it was made of smoothed timber, according to the Irish fashion, for they had no stone fabrics. About 635, Finian, an Irishman, and Bishop of Lindisfern, built a church in that isle for his episcopal see; it was made of split oak and covered with reeds. Eadbert, his successor, ordered the thatch to be taken off, and both the roof and the walls to be sheeted with lead. Bede says, Finian's church was after the Irish fashion, being of wood, whereas the Roman was of stone. In 684, Cuthbert, an Irishman, and also Bishop of Lindisfern, constructed an edifice, of which Bede gives this description:—"The building was round, four or five perches wide between wall and wall. The wall on the outside was the height of a man, on the inside higher, so made by sinking of a huge rock, which was done to prevent the thoughts from rambling, by restraining the sight. The wall was neither of squared stone or brick, or cemented with mortar, but of rough, unpolished stone, with turf dug up in the middle of the place, and banked on both sides of the stone all round. Some of the stones were so big that four men could hardly lift one. Within the walls he constructed two houses and a chapel, together with a room for common uses. The roofs he made of unhewn timber, and thatched them. Without the walls was a large house to receive strangers, and near it a fountain of water.

The paroxysm of zeal for the monastic profession alternately possessed the eastern and western world. Egypt, about the end of the fourteenth century, boasted of 76,000 monks and 21,000 nuns. In this island, in the seventh century,—the age we are speaking of,—St. Nathalus and St. Maidoc separately ruled 150 monks, and St. Manchue and St. Monenna as many nuns. Three hundred monks obeyed St. Tehan; 1,076, St. Carthag; 1,000, St. Goban; 1,500, Laserian; 300, St. Brendan; 3,000, St. Finian; as many, St. Congel and St. Gerald; so that Bishop Nicholson might well say, the secular and regular clergy were almost as numerous as men of every other denomination. In the little isle of Bute were twelve churches or chapels, and thirty hermitages; and in Unst and the other Hebrides, religious frenzy equally extending her reign. Hence the Irish acquired a fondness for, and a propensity to monachism, which remarkably distinguished them through every age. Though the number of monks and nuns now recited is by no means to be depended on, yet it suggested to their presidents the necessity of stone enclosures, or closes; those in the east were called Mandræ. The word originally imported a sheep-fold, and was applied to those monastic buildings wherein the Archimandrite presided over his disciples, as the shepherd superintended his flock in the fold. There are many of these Mandræ dispersed over this kingdom hitherto unnoticed; one remarkable is Dun Ængus. This is in the greater isle of Arran, on the coast of Galway, situated on a high cliff over the sea, and is a circle of monstrous stones, without cement, and capable of containing 200 cows. The tradition relative to it is, that Ængus, king of Cashel, about 490, granted this isle, called Arran Naomh, or Arran of the Saints, to St. Enna or Endeus, to build ten churches on.

The 7th and 8th centuries were brilliant in the history of Irish literature. It is therefore surprising, amid such a superiority, not

to find other useful branches of human knowledge cultivated in this isle. However, other people were similarly circumstanced. Dr. Johnson remarks, "that he knew not whether it was peculiar to the Scots to have attained the liberal without the manual arts, to have excelled in ornamental knowledge, and to have wanted not only the elegancies but the conveniences of common life. Yet men thus ingenious and inquisitive are content to live in total ignorance of the trades by which the human wants are supplied, and to supply them by the grossest means." To the same purpose Woodward, from Diodorus Siculus, observes it as a mighty paradox, that the Egyptians should take little care of the structure of their houses, when they wasted so much time, labour, and expense in adorning their sepulchres. But the solution of these paradoxical appearances is not so difficult. The climate has some influence on the architecture of a country, but its political constitution the greatest. Where this is unfavourable to industry, to commerce, to arts and manufactures, there we are not to look for neatness or convenience in apparel, in building, or any other instance of civil improvement.

From every evidence supplied by antiquity, it is certain the Irish had neither domestic edifices nor religious structures of lime and stone antecedent to the great northern invasion in the ninth century. Some years before the birth of Christ, Drusus erected fifty castles or forts along the Rhine, so that the calcination of stone and the preparation of mortar could not be unknown to the natives, and yet, a hundred years after, Tacitus assures us, the Germans did not use cement or mortar. A century later Herodian and Dion Cassius declare the same. Tacitus does not say the Germans were ignorant of mortar and its composition,—that would have been impossible, from their intercourse with the Romans—he only denies them the use of it. Their riches, as the writer observes, were their flocks and herds, their life was pastoral; a state of society wherein no one expects to find durable structures. And yet they had skill enough to form subterranean granaries, and antile chambers to secure their corn, and soften the severity of the winter's cold. Such was exactly the case with the Irish. Whatever change Christianity operated in the religious sentiments of the latter, it made no alteration in the political constitution of the country—of course things remained in their ancient state as to the arts of civil life. But the doctrine and discipline of the Irish Church were averse to stone fabrics. Celsus, the bitter enemy of Christianity, objects to the first believers, that they had no dedications or consecrations of altars, statues, or churches. Four centuries had almost elapsed before the usage here noticed began. In this interval the Gospel was propagated in this isle by Greek missionaries or their disciples. It was in the sixth age churches were anointed with chrism, and in 787 reliques were placed in them, and they then assumed the name of some patron saint or martyr. While corruptions were creeping into religion on the continent, ours was pure and primitive. Reteutive of the faith delivered to us, and precluded from access to Rome by the convulsions of the empire, we were strangers to the innovations of foreign churches; when time discovered them to us, we beheld them with horror and detestation. Such is the tenor of our ecclesiastical history. Lanfranc complains, in 1074, that we did not use chrism in baptism; and we may conclude that it was not applied in inferior sacred offices, as consecrating a church or altar. By Archbishop Comyn's canons, made in 1186, it appears that our altars were of wood, and therefore incapable of chrismation; for the councils of Adge, in 506, and of Epaon, in 517, forbid the holy oil to be applied but to structures of stone. Here are proofs of our churches being generally of wood, even in the twelfth century, and that their consecration was solely by prayer, agreeably to the custom of the present age.

The Britons, who symbolised with the Irish

* From the *Dublin University Magazine* for April.

in religious tenets, had only wattled and wooden churches. The ancient chapel at Glastonbury, preserved in Spelman, and that of Greested in the county of Essex, exhibit specimens of the old Irish and British style.

The Irish Ostmen being converted in the ninth century, embraced the faith of their countrymen in England. We find them in subsequent ages corresponding with Lanfranc, Archbishop of Canterbury, and sending to the metropolitans of that see their bishops for consecration. This predilection might be reasonably expected among people issuing from the same country, and connected by affinity and language. Accordingly, the first structures of the Ostmen in Ireland, and the first buildings with mortar, were stone-roofed chapels for relics. We shall only add one very remarkable circumstance, and that is the close imitation of British crypts in their sculptures by our Irish architects. Let the learned reader compare the sculptured ornaments of the undercroft at Canterbury with those in some of our chapels, and he will be convinced of the truth of what is here advanced. As our over-ground cryptical chapels have been hitherto little noticed by Irish antiquaries, and as they are objects extremely curious, we shall now communicate what authentic information has occurred to us concerning them.

Near the cathedral of Killaloe is a stone-roofed chapel; in it were probably deposited the relics of St. Flannan, though after translated to the cathedral. This patron saint is said to have been disciple of St. Molua, the founder of this chapel, which from him was called Kil da Lua, and the patron himself, Mo-Lua, or My Molua, a pronoun added by way of endearment. Kil-le-lua is literally the church upon or near the water, the water here is the Shannon: a rational and obvious origin of the name. This place, being but eleven miles from the great Ostman settlement at Limerick, was perhaps as early built as any other in the isle.

The church of St. Doulach, situated about four miles to the east of Dublin, on the road to Malahide, is a curious structure. It is 48 feet long, by 18 wide. There is a double roof, the external which covers the building, and that which divides the lower from the upper storey. You enter this crypt through a small door to the south. Just as you enter the tomb of St. Doulach presents itself. The tomb projects so far into the room that, together with the stairs of the tower and legs of the arches, it can contain but few people: it seems designed for no other use but the separate admission of those who came to make their prayers and offerings to the saint. From this room, by stooping, you pass a narrow way and enter the chapel. This is 22 feet by 12 feet, and lighted by three windows, one at the east, and two at the south; the arches pointed, and decorations Gothic; these, with the tower, are later additions. The roof is of stone, and carried up like a wedge. The stones which cover it are not large, but so well bedded in mortar that after many centuries this roof transmits neither light nor water. There is a well in an octagon enclosure, with some emblematic fresco-paintings, and a bath supplied from the well. The cryptical sepulchres and oratories in Gregory of Tours and Bede are the exact archetypes of ours. These were secured from vulgar approach by doors and chancels; the supplicant was permitted only to put his head into a little window, and there invoke the saint, and take with his fingers a pinch of the sacred dust. Under the ancient church of Rippon, founded by Wilfrid, A.D. 660, is an arched chapel, 10 feet 6 inches long, 7 feet 6 inches broad, 9 feet high. There are nine steps down to it, and there is a little hole, called St. Wilfrid's needle, through which people are drawn into the chapel. In all these instances there is a remarkable uniformity, proving that they sprang from one common origin.

The crenellated square tower at St. Doulach's, if not a later addition, must have been constructed by some of the Fingallian or Dublin Ostmen princes of the eleventh cen-

tury: and this we conclude as well from the building as from the name of the saint to whom it was dedicated. St. Tullach, or St. Doulach, is a corruption of St. Olave. Now St. Olave was born A.D. 993, and died at the age of thirty-five, so that this chapel could not be older than the beginning of the eleventh century. About 1038, Silhtric, the Ostman king of Dublin, built the church of the Holy Trinity, or Christ Church, in that city; and his bishop, Donat, was animated with not less zeal, for he founded the chapels of St. Michael and St. Nicholas. Tulloch's, or Olave's-lane, probably received its name at this time; it ran from the end of Fishamble-street to the Wood-quay, and, as was usual in those ages, had a cross, a well, or oratory dedicated to this saint. It might well be expected that the northerns would particularly venerate a saint of their own country, and endeavour to procure some of his relics. St. Doulach's chapel is an existing monument of this fact.

St. Doulach's well was the baptistery; it is at a small distance from the chapel. All the old baptismal fonts were octagonal. There was something mystical in the number eight. Among Christians, the idea of this figure seems to have been taken from the eighth or baptismal day. Thus St. Ambrose:—

"Octachorum sanctos templum surrexit in usus,
Octagonus fons est munere dignus eo.
Hoc numero decuit sacri baptismatis aliam
Surgere, quo populis vera solus rediit."

The emblematic fresco-paintings with which this baptistery is adorned were directly copied from a Roman original. Thus Prudentius speaks of the Vatican font:—

"Omnicolor vitreas pictura superne tingit undas.
Muses relucet et virescit aurum.
Cyaneusque latex umbram trahit imminentis ostri,
Credas moveri fluctibus lacunar."

As a supplement to what has been said of St. Doulach and his chapel, we take leave to add an account of both from an anonymous though well-informed author, who, in 1747, published a concise survey of the ecclesiastical state of Dublin and its diocese:—

"In Bove-street, now called Fishamble-street, stood formerly a chapel-of-ease to St. John's Church, dedicated to St. Doulach, an anchorite whose feast is celebrated on the 1st of August; on which day, and during its octave, is visited a famous well in Fingal, between Belgriffin and Kinsaly, about five miles from Dublin, contiguous to a church sacred to the memory of this venerable solitary, whose life was formerly preserved at Malahide, but now not to be met with. The building of the hermitage is still covered, and in it is an altar, which some look upon to have been the tomb of that holy recluse; near which is a hole, where many put in their heads to get rid of the headache. Up two pair of stone stairs is shown his bed, not much larger than a small oven, scarce sufficient to contain a person of a moderate size. It is held in great repute by women in pregnancy, who turn thrice in said bed, hoping thereby they may not die in child-bed. The steeple is still up, as is also the church, which is now much smaller than formerly. Divine service is performed there once a fortnight, and the tithes belong to the chapter of Christ Church. Near this church is a well of most lucid and delightful water, enclosed and arched over, and formerly embellished at the expense of Peter Fagan, brother of John Fagan, of Feltrim, Esq., with the decorations of gilding and painting. The descent of the Holy Ghost on the apostles was represented on the top; the effigies of St. Patrick, St. Columba, and St. Bridget, much after the manner they are engraved in Messingham's title-page to his *Florilegium Sanctorum Hibernia*, as also of St. Doulach in a hermit's habit. On the walls was the following inscription, engraved on a marble stone:—

"Piscine Solymis clare deus effertur alter,
Et medicas populus jactet Hebræus aquas.
Grata Deo patrium celebrat Fingallia fontem,
Doulachi precibus munera nata piis.
Morbos ille fugat promptus, viresque reponit,
Ægris et caussis mille salutis habet.
Sœclitæ æquis agit modis Doulachum in nudis,
Angelus ut fontem, sic movet ille saum.
O Fons! noster amant, si te negligimus olim
Mox eris! ut nomen sit super astra tuum."

"Bethsaida's sacred pool, let others tell
With healing virtues how her waters swell,
An equal glory shall Fingallia claim,
Nor be less grateful for her blissful stream.
Thy prayers, Doulachius, mounted up to heaven,
Thence to thy well the mighty power is given
To drive the fiery fever far away,
Strength to replace, and rescue from decay.
In every malady to life a stay.
The cherub wondrous moves his wat'ry sphere,
The saint behold who stirs the fountain here.
Hail! lovely font, if long unsung thy name,
It hence shall rise above the starry frame."

"Dr. Patrick Russel, archbishop (titular) of Dublin, granted forty days indulgence to those who would say devoutly, on their bare knees, at St. Doulach's well, five times the Lord's prayer, and at the end of the said prayer the Apostles' creed, and that a fortnight must intervene between each time of saying the aforesaid prayers to gain the indulgence, as appears from an inscription which had been formerly on a stone which imported the same. At the back of St. Doulach's well there is another for bathing, which is vaulted, and called after St. Catharine."

Near the church of Portaferry stands a chapel; a coarse building, says the writer, of an odd contrivance, being a room 37 feet in length, 16 feet broad, and 20 feet high, covered with a coved arch of stone, so close and firmly cemented that it does not appear to admit any water. Adjoining is a similar structure, divided into two apartments. There is a very ancient overgrown crypt in an island in the Shannon not far from Killaloe. Malachy O'Morgair, about 1135, erected at the Abbey of Saul, two stone-roofed crypts, 7 feet high, 6 feet long, and 2½ feet wide, with a small window at one side. But that of the greatest magnitude and best architecture is Cormac's chapel at Cashel.

Irish romantic history tells us that he was descended from Oliol-Olum, king of Munster of the Eugerian race, and that he was proclaimed king of Cashel, A.D. 902, according to the annals of Innisfallen, exercising at the same time the archiepiscopal functions. That in 906 he was suddenly attacked by Flan, king of Meath, and by Carubhal, king of Leinster, who plundered his country. That, in 907, he defeated these enemies on the plains of Moylena, in Meath, but, in 908, he was again invaded, and fell in battle on the plain of Moyailbhe, not far from Leighlin. We rely more on the testimony of Caradoc of Lhancarvan, for his existence, than the plausible fictions of national writers; and we think what this Welsh chronicler relates of his being slain by the Danes most likely, for in his time they were ravaging every part of the kingdom. Irish writers praise his learning, piety, valour, and magnificence; after pompously detailing these, they are not ashamed at confessing their total ignorance of his successors in Cashel for one hundred years. As usual, they are perfectly acquainted with the minutest transactions of the remotest ages, of which there are no annals or documents remaining, but where light might be expected from the latter in subsequent periods, there nothing but darkness reigns.

Cashel seems to have been dedicated to religion in times of paganism; for on the site of heathen fanes early Christianity erected her churches. Ware relates a tradition that the kings of Munster were proclaimed on a large stone there. This was a Firbolgian custom, introduced from the North, where the people reared great stones, or stone circles for the election and inauguration of their princes, the electors themselves also standing on stones while giving their suffrages. Formerly in Scotland, when a chief entered on the government of his clan, he was mounted on a heap of stones in the form of a pyramid, his followers standing in a circle round him. Manus O'Donnell, lord of Tyrconnel, was inaugurated on a rock near Kilmacrenan Church in 1537, as Cox informs us. And McDonald, king of the Isles, was crowned standing on a stone. Our Liafail, or Stone of Fate, is very celebrated in Irish romantic history; on it our monarchs were seated for inauguration, and if he was the true successor the stones groaned in sign of approbation. This stone was brought into

Ireland by the Tuatha de Danans, from the city of Falia, in the north of Germany. This tradition, connected with the acknowledged practice of the Northerns, proves the custom to be of Scandinavian origin, and very different from the Celts, which used a tree, and not a stone. Thus the Bile Magh Adhair was a remarkable tree, in the plain of Adhair, in the county of Clare, under which the Dal-cassian princes were inaugurated. Every solemn and holy office was performed by the Celts in groves; by the Firbolgs in stone circles. Here we have an eminent instance of the distinction between these people, in religious rights and civil usages, so much insisted on in these papers.

That Cashel was an ancient mandra, the wall surrounding its summit, its situation, and the monastic spirit of Christianity prevalent in this kingdom, give reasonable grounds to believe. The stone-roofed chapel before described, and denominated from Cormac, I think, must have been constructed posterior to the age of this prelate; because, if things were conducted in the common manner, he must have been first canonized, and his relics afterwards be deposited in this crypt. So that unless he could have foreknown that he was to be dubbed the patron of Cashel, he hardly would have built this chapel for his own remains. Or if this chapel had been once dedicated to St. Patrick, the lesser would never have dispossessed the greater spiritual hero. It is therefore probable that some other person erected this fabric to his memory, and enshrined his bones there, as a martyr who fell in defence of his religion and country against pagan invaders. Who this person was, or the time, is not easy to determine. The dimensions of this chapel are thus stated:—

	Ft.	In.
Length of the nave	30	0
Breadth	18	0
Length of the choir	13	8
Breadth	11	6
Breadth of the grand arch leading into the choir	9	0
Width of the north door	2	7
Of the south door	3	4
Of the west door	4	6
Mean thickness of the walls	4	1
Length of the square tower	10	0
Breadth	6	8
Height	63	0
Height of the stone roof from the ground	52	0
Slant of the roof	24	0
Diameter of the columns of the grand arch	0	6
Height	8	0
Height of the entire arch	12	6
Breadth of the archivolt	3	6
Length of the chapel inside	47	8
Length outside	53	0

This is certainly one of the most curious fabrics in these kingdoms. It is a regular church, divided into nave and choir, the latter narrowing in breadth, and separated from the former by a wide arch. Under the altar, tradition places the bones of St. Cormac. There is a striking resemblance between this chapel and the Church of St. Peter at Oxford, with Grymbald's crypt beneath it. This church is supposed to be the oldest stone church in England, and said to be built by Grymbald about the end of the ninth century. It consists of a nave with a square tower at the west end; at the east is the chancel, and on its extremities stand two round towers, terminating at top in a cone. The crypt is arched, and the columns supporting it are short and massive. The square tower is about 80 feet high, and the round towers from the parapet about 12 feet. Let these particulars be compared with similar ones at Cormac's chapel, and a strong likeness will be perceived; only our chapel is infinitely more curious, by uniting under its stone roof a church and crypt. Notwithstanding this agreement, I think the ornaments in Cormac's chapel bespeak it to be a construction later than St. Peter's. The grotesques on the capitals in the crypt of the latter are not seen in our chapel. Over a door, indeed, is an archer, mounted on some ideal quadruped. High, square towers were certainly known and in use in England when Cormac's chapel was built, because there is one there; but it could not be placed in the intersection of the cross, for our chapel is not cruciform; besides, if there were cross aisles, it would not have answered the idea of a crypt. High

towers are dated about the reign of Edgar, towards the end of the tenth century. So that, on the whole, it is not unreasonable to suppose, about this time, or the beginning of the next age, Cormac's chapel was erected by some of his successors in Cashel, and that prior to the introduction of the Norman or Gothic styles, for in every respect it is purely Saxon. These hints may, perhaps, remove some difficulties, and lead to some happier conjectures on this subject.

The annals of the Priory of All Saints informs us that the church, after the restoration of it, was solemnly consecrated, and a synod held in it in the year 1134. About thirty-five years after Donald O'Brien, king of Limerick, built a new church in Cashel from the foundation, converting Cormac's old church into a chapel or chapter-house, on the south side of the choir. Here, the church noticed in the annals seems to be Cormac's, which probably had been desecrated in the wars of those times. Or shall we say that a cathedral was erected in 1101, when Mortogh Mor O'Brien solemnly granted and dedicated the town of Cashel to God and St. Patrick. If so, Mortogh's fabric must have been mean and trifling, since it went to decay in about thirty years; for it cannot be supposed Donald O'Brien would have constructed a new church had his predecessor's continued in good preservation. We therefore imagine there was no religious edifice of stone on the rock but Cormac's antecedent to Donald's church. Notwithstanding the former might have been used as a chapter-house, the builders had the strongest reason for uniting the cathedral with the chapel, and that was the sanctity of the latter. Had the chapel been smaller, it would have been enclosed in the new building. Thus Edwin, king of Northumberland, made a small wooden oratory; afterwards he built a church of stone, enclosing the oratory within it. The old church at Glastonbury had a divine odour exhaling from it. Augustine did not attempt to demolish it, but very much adorned it. In all parts the veneration for these old chapels and crypts was the same.

Donald O'Brien founded a cathedral at Cashel about 1169. This was certainly of stone, for it did not want any great repairs for two hundred and fifty years, when Archbishop O'Hedian rebuilt those parts which had been injured by age, and modernised the whole, as the long lancet windows and other Gothic ornaments testify.

But neither the fame of St. Cormac, nor the curious remains at Cashel, have made it so memorable as the synod held there in the year 1172, when every archbishop and bishop gave sealed charters to Henry II., conferring on him and his heirs for ever the kingdom of Ireland; which charters were confirmed by Pope Alexander. At the same time, on the king's part, were offered and accepted the English laws; these the Irish solemnly swore to observe, and for their better execution the kingdom was divided into shires.

CORRESPONDENCE.

SURVEYORS' CHARGES.

TO THE EDITOR OF THE IRISH BUILDER.

WE print below the scale of charges for surveyors' work as proposed by our correspondent "X."

The charge for taking a plan of an estate, laying it out, and arranging for building upon it, should be regulated by the time, skill, trouble, and expense involved.

The charge for preparing specifications, directing, superintending, and certifying the proper formation of roads, fences and other such works, is to be at the rate of 4 per cent., but does not include putting the plans on the leases, which are to be charged for separately, by time occupied in so doing.

For selling by private contract, freehold and copyhold property, or leaseholds held at ground rents:—On the first £100, 5 per cent. (in no case less than £5); from £100 to £5,000, 5 per cent. on the first £100, and 2½ per cent. on the remainder; above £5,000, 2½ per cent. on the first £5,000, 1½ per cent.

from thence to £10,000, and 1 per cent. on the remainder. And, in each case, a further commission, as undermentioned, on the amount paid for timber, fixtures, or effects.

For letting estates or houses or disposal of leases at a rack rent:—On agreement for one, two, or three years, 5 per cent. on the amount of one year's rent, and 5 per cent. on the premium and on the sum obtained for fixtures, timber, &c. On lease or assignment of lease:—on the amount of first year's rent 5 per cent.; on the amount of second year's rent 2½ per cent.; also on the amount of premium agreed to be paid for lease or assignment, 5 per cent. on the first £500 and 2½ per cent. on the residue; and on the amount agreed to be paid for fixtures or timber 5 per cent. on the first £200 and 2½ per cent. on the residue. In either of the above cases, where a valuation of the timber, fixtures, or improvements, &c., is necessary, such is made and concluded without extra charge, except for travelling expenses.

The charges per day, when no outlay on works is involved, or when the time occupied is not covered by the architect's commission, rates are as follow:—Principal, 5 guineas per day of eight hours when engaged at a distance from offices; 4 guineas ditto when engaged in offices or in town; no special attendance under 10s. 6d. in offices, or one guinea elsewhere; correspondence 5s. each letter, or according to time and trouble. First-class assistants one and a half guineas per day in offices, to two guineas when engaged elsewhere; second-class ditto one guinea to one and a half guineas per ditto; pupils, ditto, half a guinea to one guinea per ditto, according to experience.

The charge for estimating dilapidations is 5 per cent. on the estimate, and in no case less than £3 3s. Valuations of property 1 to 1½ per cent., or by arrangement.

Actual travelling and hotel expenses, cash paid chainmen or other incidental charges incurred, to be charged in addition to the above rates.

For taking out quantities from drawings 1½ per cent. For do., and pricing to form bill, 2½ per cent. For mea-uring and preparing bills of quantities from actual work executed, and pricing as per agreed schedule, (as in extras and omissions) 2½ per cent. For do. and pricing without schedule one half per cent. extra to the above. The charges to be exclusive of lithography or scrivenery when more than one copy is required.

In all cases where quantities are taken out by or under the direction of the architect or surveyor, they are to be paid for by the builder or contractor whose tender may be accepted. In case no tender be accepted, or the works be not proceeded with, the quantities to be paid for by the employer, who is also to pay for adjusting extras and omissions at above rates.

The architect and surveyor will use his best skill and judgment in the interest of the employer, and will act independently between him and the builder or other contractor, but is not to be held pecuniarily responsible to either for any decision, certificate or opinion given or withheld in the course of the employment, nor is he to be held accountable for or in any disputes that may occur between the employer and the builder or other contractor, or with adjoining owners; his character and reputation being the only security offered for the due performance of his duties.

Should any difference or dispute arise between the architect and surveyor and the employer, the same is to be referred to the decision of an independent architect or surveyor to be agreed on, or in case the parties shall not be able to agree on one, then to the arbitration of three architects or surveyors, one to be named by each party and the third by the two so chosen, said architects or surveyors to be upright, well-known men of standing in their profession, competent to decide on the matter in difference.

A few years since was exhibited in New York a most marvellous specimen of hand-writing, it being no less than a complete copy of the Holy Bible on a surface about the size of an ordinary mantle or pier-glass, the words of the same being so ingeniously arranged and grouped as to form the representation of a beautiful temple, while at the same time not one word is omitted, no sentence transposed, and the several chapters follow each other in proper order. At first view the spectator perceives only a well-arranged architectural drawing, delicate and exact; but on close examination (some parts requiring the use of a magnifying glass), every part of the elevation, each window and doorway, each apparent line and curve of column, cornice and entablature—everything, in short, about the picture, except, perhaps, a slight shading, is resolved into distinct and regular hand-writing. This wonderful production was executed by a Polish gentlemen by the name of David Davidson, who finished his task after two years and seven months of constant labor and application.

THE ADDRESS OF "DUBLINIENSIS."

WE publish in our present issue a rather remarkable document on a really important subject. It is from the pen of a gentleman who is entitled to speak upon the matter he passes under review. We have no doubt that it will attract attention and elicit comment, and perhaps much criticism, in some quarters. Knowing, as we do, the writer's earnestness and past labours in the interest of architecture and building in Ireland, and his practical knowledge and historical research, we can safely leave his paper to the further consideration it is sure to command at the hands of architects, builders, workmen, and the public generally.

CHURCH OF THE IMMACULATE CONCEPTION, ENNISKEAN, CO. CORK.

WITH our present issue we give an illustration of the new Catholic church, the erection of which has just been commenced by the Rev. Dr. Coveney, P.P., at Enniskean. The style, which is Early Pointed, is treated in a bold and simple manner, and with a decidedly Irish feeling in its details, as indicated by the entire absence of buttresses, the high-pitched gables, and flush barge copings, &c. It is cruciform on plan, the nave and chancel being the same breadth and height throughout, measuring 110 ft. long by 30 ft. wide; the transepts, north and south, being 61 ft. by the same width. The "ladye chapel"—which, owing to the dedication of the church, has had bestowed upon it a larger amount of ornamentation than the rest—is to terminate at the east end with a semi-octagonal apse, and is to finish internally with molded stone arcade over the windows, supported on shafts of Cork red polished marble, with carved capitals. This chapel runs parallel with the chancel, with which, as also with the south transept, it will communicate by large arched openings. The tower occupies the corresponding angle, formed by the south transept and nave; it will be surmounted by an octagonal broach spire—total height, 110 ft.—the lower portion forming an ample porch, through which will be the principal entrance. There will also be a large doorway in the western end, and another in the north transept, each protected by a porch. An ample sacristy and a separate vestry for acolytes completes the arrangement, which is a very convenient one, and in every way suited for the purpose of a country parish church, affording accommodation to about 900 persons, so that they may all both hear and see the officiating clergyman. The carving is to be confined to the principal doorways, on the tympana of which "the Immaculate Conception" and the various symbols of the Blessed Virgin will be executed in alto-relievo. All the dressings and masonry will be exclusively of local material, a quarry of a light warm-tinted sandstone of sound, good quality, and easily worked having been found in the neighbourhood. The roof is to be open timber work, wrought and varnished. The design is by Mr. Richard Evans, of Cork.

The interesting ceremony of "laying the foundation stone" was performed on the 8th inst. The *Cork Examiner* has been so happy in its description of this event, that we are induced to make a lengthened extract from our contemporary's report; and we most

cordially wish the Rev. Dr. Coveney every success, and a happy termination to the spirited undertaking which has commenced under such favorable and gratifying circumstances.

"Rarely have so many circumstances combined to make such an event one of unmitigated jubilee. The season was such as to cause the narrowest nature to expand with irrepressible gratitude to the Most High for the manifold benefits—the wealth of nature and of grace—which he lavishly bestows upon his creatures. The scene was one teeming with incentives to delight and rejoicing; and the holy work to be inaugurated commanded the sympathy and approval of all men, while it gave joy and glory to Heaven. It was a work of special interest, not only to the pious Catholic, but to the lover of our ancient and historic land. It carried back the memory to the days when Kinneigh (the original name of the parish) was a bishop's see, the site of a cathedral, and the seat of an ancient monastery, to which the people flocked for education. It revived, too, the recollection of our people's martial patriotism, when from this part of the country the clan O'Mahony was led by its chieftain Keane O'Mahony (from whom Enniskean takes its name) to the plain of Clontarf, where it singularly distinguished itself in the final expulsion of the Scandinavian invaders. Of this historic incident we find a remarkable memorial still extant in the parish, for at Kinneigh there exists, in a state of perfect preservation, a unique specimen of the ancient round towers of Ireland, professedly erected to commemorate the part taken by the people of the district in the great victory over the Danes. Unhappily, this is the only remaining evidence of the ancient greatness of this famous locality. The Cathedral Church, if we except the ruined doorway, lives only in the imagination of the antiquary, or the ecclesiastical records of the country; the monastery, to which students crowded from remote places, is a thing only of tradition. With such reminiscences was the parish invested when the Rev. Dr. Coveney became its pastor: and, from the time of his appointment, it has been the earnest object of his ambition, to see a temple reared in its midst, at once befitting the worship of the Almighty, and worthy of the character of the district. Untiring zeal and labour have at length had their fruition in the commencement of a church which will be in keeping with the great architectural revival going on in the country, and at once a monument of the piety and devotion of the pastor and his people. The Rev. Dr. Coveney has been singularly fortunate in obtaining a site for the new church. His Grace the Duke of Devonshire most munificently presented him with a plot of seventeen acres of valuable land in the most suitable situation, and contributed, besides, a sum of £250 towards the cost of the building. Local co-operation has been most generously afforded, the Protestant residents seeming to vie with the Catholic parishioners in their generous support of the meritorious undertaking; and thus the good work was fairly started, the inauguration of which it was our happiness yesterday to witness. The site of the new church is on a plateau, slightly raised above the general level of the rich and extensive valley on the northern side of which it stands. The mail coach road passes within a few hundred yards of it, and it is a conspicuous point in the landscape as viewed from the railway. The eye roams with delight over the vast expanse of verdure which stretches east and west, and is led up, irresistibly, to the northern slope, on the breast of which the new church will stand, a glorious back-ground of luxuriant woodland closing in the picture. Yesterday, this charming landscape glowed in all its fresh luxuriance under a brilliant summer sun, and a pleasant breeze, murmuring musically in the light young foliage, wafted hither and thither odours that seemed the exhalations of nature's gratitude to the Creator, while it bore aloft the joyous homage of a pious and simple-hearted people. Access to the scene of the ceremony was rendered easy and convenient by special arrangements, of a liberal character, on the West Cork Railway. Additional liveliness was imparted to the event by the presence of four excellent bands—from Dunmanway, Bandon, Togher, and from Upton Reformatory, which played with singular success some admirable selections of national and popular music. The immediate preparations for the ceremonial were of a most tasteful and happy character, and had their fruition in a spectacle of extraordinary picturesqueness and even splendour.

The trowel, used by his lordship was of silver, handsomely engraved (manufactured by Mr. James Hackett, Patrick-street, Cork), and bore the following inscription:—

Presented
To the Most Rev. DR. DELANEY,
By the Rev. DR. COVENEY, P.P.,
On the Laying of the Foundation Stone of the
Church of the Immaculate Conception,
At Enniskean, on Sunday, the 7th May, 1871.

CHEAP RAILWAYS.

IN our number for the 15th ult. we printed a portion of a paper read by Mr. James Dillon, C.E., before the Royal Dublin Society. As we find that the author has since brought it out in pamphlet form,* accompanied by a map of Ireland, we are precluded from giving the remainder as we intended: a few extracts must suffice;—our readers can invest their sixpences at 116, very much to their advantage.

"No country (says Mr. Dillon) in the world, in proportion to its size, population, and traffic, can boast of a more colossal (if I might use the word) system of trunk or main lines, than the trunk lines to Belfast, Galway, and Cork. With one or two exceptions, these are larger than the American and Continental railways. They are spanned by thousands of bridges and numerous viaducts of the most beautiful proportions, which will for ages to come do honour to their designers, Messrs. M'Neil, Hemans, Le Fanu, Barton, and others. The regularity of the main line trains, and the small number of railway accidents, coupled with the fact that they are nearly all paying a fair dividend, is proof that great ability and attention is displayed by all the officials, from the directors downwards.

"The collapse of the railway system, as a whole, is therefore all the more remarkable. The financial position of the main lines has been imperilled by the fact that notwithstanding their colossal nature, the branch lines had to be made on the same colossal scale, thus causing serious financial difficulties, and leading to the downfall of the system, as a whole."

"It is evident that the time has at last arrived when the people of Ireland must seriously consider what had best be done, for Government will not act until the people are unanimous. I therefore venture to make the following suggestions, some of which have already been ably discussed:—

1st. That the laws relating to the construction of colossal branch lines in Ireland wholly unsuited to the requirements of agricultural districts, should be repealed.

2nd. That Government should pass an Act giving to the Lord Lieutenant of Ireland, or the Commissioners of Public Works, authority to sanction the construction of branch railways throughout the agricultural districts of Ireland.

3rd. That it should be legal for branch railways to cross all roads on the level, giving the authorities power to order bridges to be substituted in certain special cases where public interests required it, and that the scale of bridges and inclinations of roads now required by law might be reduced to the average dimensions of the road bridges and existing road inclinations on the particular road required to be crossed by a railway bridge."

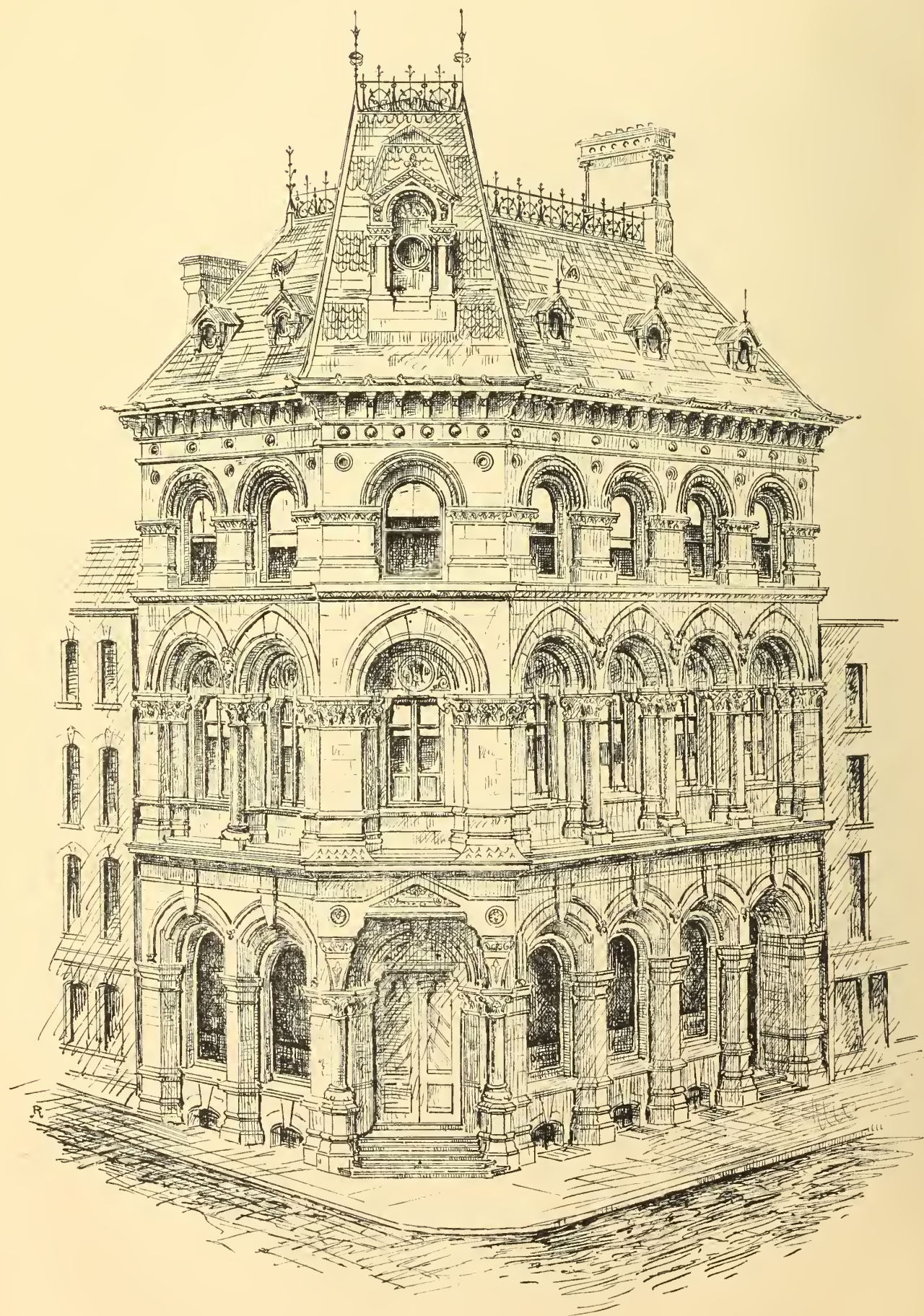
"4th. That the Commissioners of Public Works should be empowered to define the area of the district that would be beneficially affected by the proposed line (care being taken not to include any portion not beneficially affected), and the sum to be guaranteed by said district.

I would further propose that the branch lines should be worked by existing companies at a mileage, and that in case of any disputes arising on this head, same should be referred to a public arbitrator, appointed for the purpose."

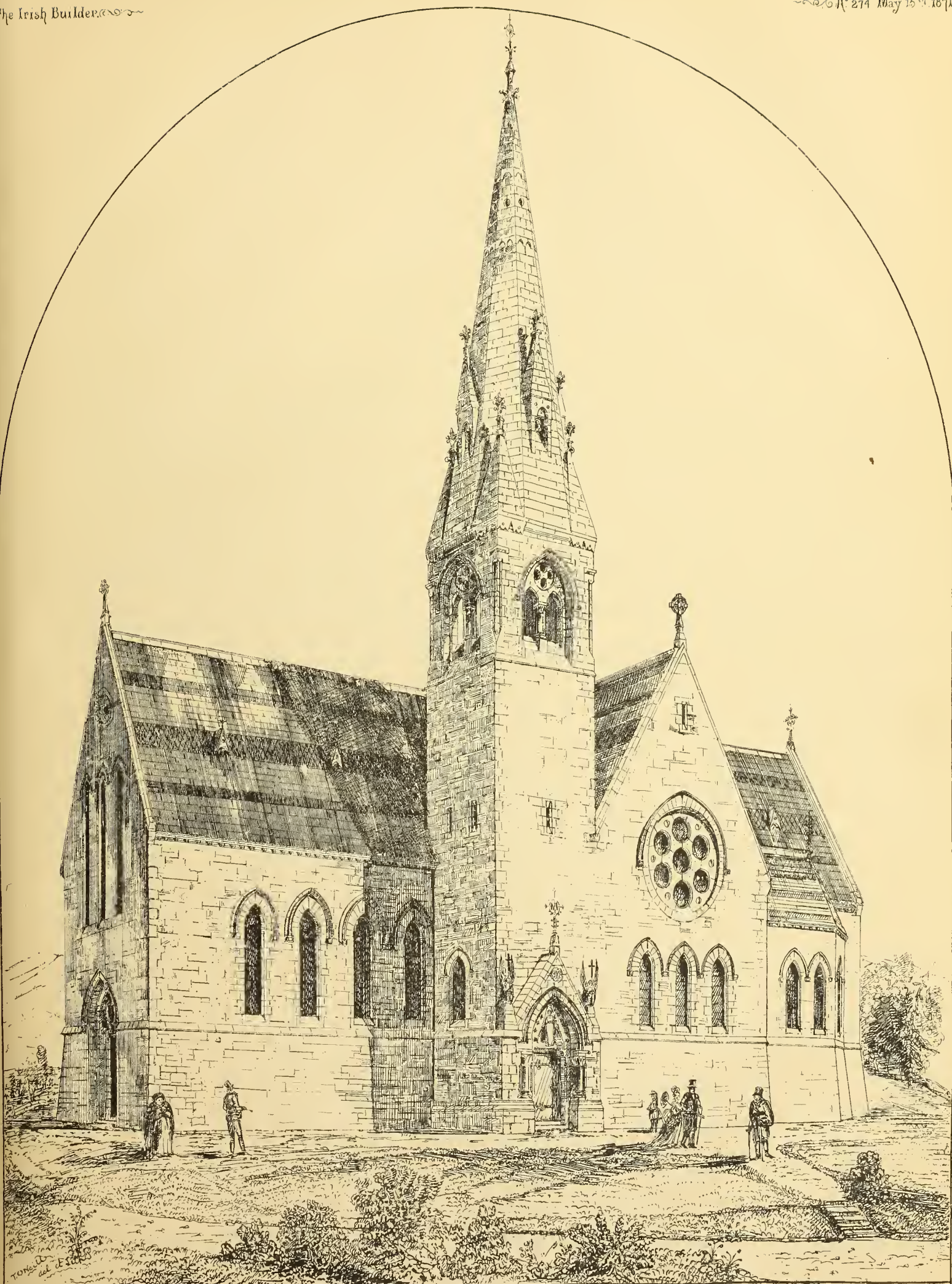
"It is impossible that the country can any longer submit to the present state of things. Many of the less important lines are at this moment in a dangerous state for want of money to put them in working order. I know of viaducts that have been propped up in the middle of their spans to keep them from falling; and in other places, where the sleepers are too rotten to support the rails, and the rolling-stock in bad repair. Each

* On the Railways of Ireland, and the Causes which have led to the Stoppage of Railway Enterprise, and the best way of providing for the Improvement and Extension of the Railway System. Dublin: E. Ponsonby, Grafton-street.

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day, the evils I refer to are becoming worse and worse, and the debts of the insolvent companies are accumulating, and their lines become more unsafe for traffic."

"A people who are not prepared to help themselves cannot expect Government to present them with a railway; but there can be little doubt that if the people exert themselves, and work unanimously in this matter, their efforts will be crowned with success."

In an appendix Mr. Dillon prints his report on the proposed line of railway from Galway to Clifden *via* Oughterard, Recess, and Ballynahinch, on a gauge of 3 ft. 6 in. Although the question of Irish Railways has been shelved for the present, we would strongly advise that every legitimate means should be used to induce the Government to relax the too stringent (and unsuitable to Ireland) exactions required under existing acts. Gentlemen like Mr. Dillon and Mr. Fearnley deserve well of their fellow-countrymen.

BLAST FURNACES AT NEWPORT.

MR. B. Samuelson, M.P., read a paper before the Institution of Civil Engineers, London, on the 2nd inst., entitled a "Description of Two Blast Furnaces erected in 1870 at Newport, near Middlesborough."

The author, having called attention to the enormous development in the production of crude iron during the last thirty years, now four times as great as in 1840, and having shown that it had increased three-hundred fold since 1750, at which time the whole annual produce of the United Kingdom was only equal to two-thirds of that of a single modern blast furnace, proceeded to describe the general arrangements of a furnace plant recently erected under his direction, and for his account, by Mr. Richard Howson, the resident engineer of the Newport works. The ironstone smelted was the ordinary argillaceous ore from the Lias, containing when dried, from 33 to 40 per cent. of protoxide of iron, and from 2 to 7 per cent. of sesquioxide of iron, equal to from 26 to 33 per cent. of metallic iron (increased by calcination to from 37 to 40 per cent.), and of from 20 to 25 per cent. of carbonic acid, 10 to 15 per cent. of silica, 10 to 15 per cent. of alumina, 1 to 1½ per cent. of phosphoric acid, in addition to 8 to 12 per cent. of magnesia and lime. The fuel was the hard coke of South Durham; the flux, principally mountain limestone.

Whereas in three furnaces erected by him in 1854, for smelting the same ore, the quantity of fuel required to produce a ton of pig iron varied from 32 to 40 cwt., and in five furnaces erected in 1863-4 from 23 to 24 cwt., the coke consumed in these new furnaces was only 20·35 cwt. This great economy of fuel was due, first, to greater capacity, augmented from 5,000 cubic feet in the earlier furnaces to 16,000 cubic feet in those next erected, and to 30,000 cubic feet in those forming the subject of this paper. Secondly, to increased temperature of blast at the tuyères, which had been increased from 650° in the earlier to 1,100° in the later furnaces; and lastly, to increased regularity in working, the result of improvements of construction, all aiming at the greatest attainable simplicity and solidity. Drawings were shown exhibiting the relative sizes and the internal forms of the three types. The produce of pig iron from one of the latest furnaces was stated to be from 490 to 500 tons per week.

The works were so arranged that all the raw materials entered at one end, whilst the iron produced and the mineral trucks when empty, left at the opposite end, both being connected with the main line of the Stockton and Darlington Railway; and the western end also with a wharf on the River Tees, forming part of the works, at which vessels of from 600 to 800 tons were loaded.

The trucks in their passage through the works were raised by a steam lift, consisting of an inverted cylinder, 40 feet long, and 38 inches in diameter, erected upon columns, from the piston of which a rod descended, and was attached to the lift by a cross head. The average gross weight of the trucks to be lifted was 14 tons; when they reached the top, they were run on to a high-level railway, which traversed a series of five calcining kilns and three boxes or bunkers for holding coke and small coal. The ironstone and limestone, and a sufficient quantity of coal for calcining, were discharged into the kilns, whilst the coke for the blast furnaces and a store of coal for calcining were dropped into the boxes. These boxes, like the trucks, were furnished with moveable doors at the bottom, and discharged themselves without manual labour, except that of opening the doors. After the trucks were discharged, they descended by means of a drop, consisting of a platform, overbalanced by counterweights, so as to keep it at the upper level until the balance was inclined in the other sense by the weight of a truck. The descent of the drop was controlled by a friction break.

The kilns were cylindrical, built up of wrought-iron plates and lined with fire-brick. The bottom was tapered, and had openings all round for the admission of air and the withdrawal of the calcined stone, which was directed to the openings by a central cone, having its apex upwards. Each kiln had a capacity of 15,800 cubic feet, and held 630 tons of ironstone and limestone.

From the kilns and bunkers the materials were carried in barrows to the furnace hoist. The entire lift was 92 feet. The author considered this hoist as the simplest and most economical which had yet been constructed. It consisted of a main spur wheel 12 feet in diameter, erected on the platform connecting the two furnaces at the top, each side of the wheel being flanked by a grooved pulley carrying a steel rope 1½ inch in diameter. From opposite ends of these ropes two cages were suspended, which balance each other, and were guided by the columns supporting the platforms. The ropes passed only half round the pulleys, and were driven by their friction on the latter, so that whenever one platform touched the ground, the weight being removed, the other could not be overwound. Motion was given to the spur wheel and pulleys by a train of wheels connected with an 8-inch double cylinder engine also erected on the furnace platform. Steam was conveyed to these engines from the boilers by a pipe 200 feet long, but being well covered the loss by condensation was trifling.

The foundation of the blast furnaces was brickwork resting on clay; on this a circular base of solid solid brickwork, 7 ft. in diameter, was erected, having a stone curb, on which were the columns, 18 feet 6 inches high, which carried the upper part of the furnace, the lower part being supported partly by a wrought iron conical case, and partly by the brickwork and stanchions which surrounded the hearth. From the tuyères upwards the furnaces were cased with wrought iron plates, varying from ¾ to 1-inch in thickness. The interior was lined with fire-brick lumps 5 inches thick, backed with ordinary fire-bricks. The lumps forming the bottom of the hearth, which was 4 feet 6 inches in thickness, consisted of two courses set on edge, and breaking joint. These lumps, as well as those forming the lining to within a short distance above the tuyères, were chisel-dressed on both faces and joints. The principal dimensions of the furnaces were: Diameter of hearth, 8 feet; diameter at the bosh, 28 feet; total height from hearth to platform, 85 feet; depth of hearth at tuyères (four in number), 3 feet 6 inches; diameter of bell opening, 13 feet; and cubical capacity, 30,085 feet.

The peculiar construction of the bell and hopper, and ingenious invention of Mr. Wrightson, of Stockton-on-Tees, was next described. The apparatus was used for charging the furnace, and for closing its top except when it had been opened for that pur-

pose. All the waste gases were thus stored, conveyed by descending tubes to a main culvert, and thence by passages to the boilers and hot air stoves, where they met with the requisite proportion of atmospheric air for combustion, and served instead of coal, to raise steam and heat the blast. The temperature of these gases at the furnace-top was stated as varying between 315° when a charge of cold materials was first introduced, up to 634° before the next charge. The various valves for regulating the admission of gas and air to the boilers and heating stoves, and for insuring their proper admixture, were shown and described.

The heating stoves consisted of nine sections to each furnace, of which eight were always in use and a ninth cooling or being cleaned. The cast-iron heating pipes were U shaped in elevation and oblong in cross section. There were twelve in each section, and their internal heating surface per furnace was about 10,000 square feet. The air entered them from a cold blast main by valves, and was discharged into the hot blast main, which latter was lined with fire brick 14 inches thick to prevent radiation. From the hot blast main the air passed to the tuyères, and entered the furnace at a pressure of 3½ lbs. above that of the atmosphere.

The four blowing engines, coupled in two pairs, which furnished 8,000 cubic feet of air to each furnace, condensed to a pressure of 4½ lbs. per square inch above that of the atmosphere, were of the vertical construction now almost universal in Cleveland. The diameter of the steam cylinders, which were placed immediately over the blowing cylinders, was 32 inches; that of the blowing cylinders was 66 inches; the stroke of both being 4 feet. The number of revolutions per minute was 24; and the steam-pressure, cut off at a fourth of the stroke, was 55 lbs. The steam was supplied to these engines, to the donkey-engines which pumped water for the tuyères and the boilers, and to the hoist and kiln-lift, by seven Cornish boilers, 5 feet 6 inches in diameter and 35 feet long, an eighth boiler being always kept in reserve.

For the transport of the materials of these two furnaces and the removal of the slag two locomotives were required; the latter had wheels only 2 ft. 6 in. in diameter, and 5 ft. from centre to centre, in order to pass readily round curves of small radius.

The entire cost of the works, of which full details were given, was £56,331 4s. 4d., exclusive of land. The principal contractors were—for fire-lumps, Messrs. W. Stephenson and Son, of Throckley Works; for the heating stove-pipes, Messrs. Smith and Thomson, of Stockton; for the boilers, hot-air valves, &c., Messrs. Cochrane and Grove, of Middlesbro'; for the blowing-engines, Mr. John Stevenson, Preston; for the gantry lift cylinder and slagging engine, Mr. M. Samuelson, Hull.

The author refrained from entering into the questions of the various reactions in the blast furnace, the relative amount of economy due to capacity of furnace and temperature of blast, or the merits of the regenerative heating stoves of Messrs. Cowper and Siemens, and of Mr. Whitwell, as compared with the cast-iron pipe stove adopted by himself, those subjects having been already treated by Mr. Cowper, M. Inst. C.E., Mr. I. L. Bell, Assoc. Inst. C.E., and Mr. Chas. Cochrane, but he presented the works described as an example of a plant fully equal to the standard of the present day, and in which no pains had been spared to combine the two great essentials in the construction of ironworks, durability and simplicity.

"British Rainfall, 1870," giving in well-arranged tables the distribution of rain over the British Isles, has just been published. Mr. G. J. Symons has compiled this work with more than his usual care. The result is to show that in 1870, in England and Wales, the rainfall was 17 per cent. below the average; in Scotland, 22 per cent.; in Ireland, 14 per cent.; the mean of British Isles, 18 per cent.

LECTURES ON ARCHITECTURE.

(Concluded from page 111.)

THERE are certain principles which must inevitably influence the future character of our art on whatever foundation it may be placed. The architecture of the future must be *true*; it must be *original*; it must be *scientific*.

It is needless to dwell on the charms of truth in our art. To "design with beauty and to build with truth" is the first duty of the architect. The truth he must follow comprises not only fitness of materials, but appropriateness of design. He has not fulfilled his part when he has thrown together in ill-regulated confusion the various parts of his design. He must not create a chaos and call it truth. A careless obtrusion of the less important features of a building or an exaggerated prominence of uninteresting constructional facts is not art, but carelessness. The *ars celare artem* calls for more than this and demands the "capacity of taking infinite pains." I do not think there should be any difference on these points between the Classical and Mediæval schools. Both must demand truth for the architecture of the future. It is not truth, but affectation to display ostentatiously in our buildings of to-day rude features of construction which were used with perfect propriety in ruder ages, centuries ago. All shams are bad, but no sham is so despicable as the affectation of non-existent virtue. It must often, however, be a difficult question for the architect to decide where affectation begins. Our art is in its nature artificial. It has to deal with technical principles of design and to create effects in accordance with their true application. The architect must think, while at his desk, of the effect of masses, outlines, light and shade, &c., just as the scene painter must do in his painting-room. Only the latter creates them at once, while the architect, must build up his conceptions stone by stone, with a painful consciousness that, less fortunate than his brother artist, he has no power to withdraw his failures from the stage. To discriminate between the allowable resources of art and the tricky devices of charlatanism is the test of the real artist. It is not to be taught or communicated,—it is the touch of genius which no academy can give. Truth in construction is much, but it is not the whole duty of the architect. He must be sure his construction is good, simple, and beautiful. It is not good if it ignores scientific knowledge. It is not simple if it rejects economy and fitness; and it can never be really beautiful when it fails to satisfy us under these heads. The display of the inner constructive features of our buildings may be carried too far, and, like other hobbies, may be ridden to death. We have all shivered under open roofs because the architect has prided himself on showing the timbers. We have perhaps experienced the misery and bad health which are caused by damp walls because in making his building "picturesque" the architect has thought more of himself than of our comfort. Sir Christopher Wren has been much blamed for his construction of the dome of St. Paul's. As you are aware, the outer dome is not the same as the inner, and there is a space between the two occupied by a brick cone, which supports the lantern and cross on the top. The reason for this arrangement is that Wren was well aware that in no other way could he hope to obtain a dome which would be satisfactory as regarded both its exterior and interior. It may safely be affirmed that not one in a thousand who admires St. Paul's does so the less because of this expedient, while it is certain that the external beauty of the dome (perhaps the most beautiful in the world) would have been altogether lost if its height had been reduced so as to fit closely on the lower interior. At St. Peter's at Rome, where the space between the two roofs is much less than at St. Paul's, the dome itself is scarcely visible from the piazza in front of the church, while St. Paul's towers over London to the admiration of us all. It would have been unfortunate for the metropolis if Wren had

been influenced by a pedantic adherence to a supposed principle of truth, and had denied us this splendid specimen of his genius. In the spire and roofs of a Mediæval cathedral we have features to which quite as great objections may be urged as against Wren's dome, for they are in both cases false roofs, not indicating the internal construction. No one, however, I should think would have anything but praise for those who have given us the exquisite beauty of the spire at Salisbury Cathedral, or the effective high roofs which cover the groinings of our great English churches. The truth is that the rules of our art must in all cases be governed by common sense, and that truth in architecture, as in other things, does not necessitate rudeness or repulsiveness.

Originality, again, must be subject to similar laws. If we hope for originality in the architecture of the future, the careful study of the past must not be neglected. Our originality must be based on knowledge and not on ignorance. It must not proceed on the supposition that the wisdom of our ancestors is folly and their strength weakness. While opposed to slavish imitation, it must ever be content to learn. A new style will not start, Minerva-like, at once perfect from the brain. Indeed, the notion of a new style is not likely to be suddenly realised. Every change of style has arisen gradually from the new wants and new ideas of successive generations. The difference, for example, between Henry VII.'s Chapel at Westminster and the Norman nave of Peterborough Cathedral is great indeed; but we can trace the gradual modifications which led, little by little, to an almost total change. So must it be in the future. We may possibly fix the basis of our point of departure. It is impossible for us to foresee its future development. The scientific progress and the enlarged wants of the day, must of necessity influence our architecture, and the work will as little go back for our bidding as the sea at the order of Canute. While yielding to none in hearty admiration of Mediæval architecture, I cannot but counsel the student not to neglect other sources of study. The noble monuments of Greece and Italy should never be neglected by him. Let him notice how naturally the masterpieces of sculpture and painting combine with the perfection of architecture, and let him be sure that, however much we may rightly value originality, there can be no true architecture of the future which does not provide for such perfect combination. A careful study of antiquity is as necessary as it ever has been, and perhaps even more so, from the special circumstances of the day. The student must work for himself with pencil and rule, and not suppose that anything but honest hard work will ever lead to greatness. It is necessary nowadays to insist more than ever on the value of sketching, as the multiplication of photographs seems to engender an unfounded belief that they may be accepted as a substitute. This is not so, and no student can be too indefatigable in exercising his faculties as sketching alone can do. Originality, indeed, is not to be obtained by rule. It is the rare gift of genius. Even genius, however, must be guided by common sense. The fire on our hearths, if not restrained, will destroy us, and so even genius itself must recognise some control. The forms of the past may be our guides for the future, the language in which we may express our own thoughts and ideas. Only they must not be our masters. We may use them as a starting-point; they must not be our all in all. We must strive for good work, honest and true, and originality may perchance come to us when we are not thinking of it. We must make our buildings as expressive, beautiful, and convenient as the masterpieces of old, and we shall then cease of necessity to copy them wholesale. If I may refer once more to Wren, I would ask you (unfashionable as I know the advice to be) to study attentively some of his London churches. You will find in them a freedom and a variety which go far to make good his claim to originality. In

St. Stephen's, Walbrook, especially will be found an interior of small size, but of charming simplicity, and of great architectural effect. The tower and spire of Bow steeple show also that, in the hands of a master, the details of classical architecture are susceptible of a treatment not less original and effective than those of any other school. In this country it now seems settled, by common consent, that our churches must henceforth be Gothic. I am not disposed to quarrel with this conclusion, as a general rule, though I may perhaps venture to think that some of our new Mediævalisms are rather out of place surrounded by squares of modern houses. At any rate, they indicate a division between religious and secular architecture which has never existed before in any period of true art. The old Mediæval architecture of this country is so exquisitely beautiful, and the associations connected with it so powerful, that it is impossible to do too much to preserve and sustain what our fathers have left to us, especially as it is not likely that any future time will rival the noble cathedrals which adorn the length and breadth of the land. The grandest works in England have been those of the thirteenth, fourteenth, and fifteenth centuries, and for 400 years no great cathedral has been built, if we exclude St. Paul's, which was altogether an exceptional case. The wants of our modern times are so vast and urgent that it taxes our energies to the utmost to keep pace with them (if, indeed, we can be said to do so) in the supply of churches, schools, and the appliances of religious instruction. Churches of moderate size in which men can readily see and hear, are therefore more likely to be multiplied in the future than buildings on the scale of our cathedrals. Modern thought tends to simplicity, and it is even difficult to prevent this taste from merging in parsimony as regards our architecture. When a rich nation hesitates about the cost of necessary architectural works, there must be something wrong. An individual must govern his wants by his purse; but a nation's true economy is to do well what is required for the public service. It is difficult to suppose that any real masterpieces of art can be erected under a system of nicely calculated less or more, which must fetter genius and cramp originality.

If, however, the architecture of the future is to be original it must be scientific. Herein, in fact, lies its best chance of originality. I have already spoken on iron architecture, and have given my reasons for doubting if at present the extended application of iron has conferred much artistic benefit on our art. As, however, architecture is the art of building, everything which renders building easier must affect the architect. Iron has been a too recent introduction for us to be able at present to fix its exact position in our art, but it would not be philosophical to turn from it with disgust because with its advantages it brings a corresponding train of difficulties. True science, ever simple and suggestive, cannot fail to assist the architect if he will follow the great principles of scientific fitness. Telford's graceful suspension bridge over the Menai Straits is an example of such a success, and the ugliness of its more modern neighbour and rival is in no slight degree due to its neglect of the rule which has given in Telford's case so satisfactory a result. In the Britannia Bridge the useless towers are unmeaning, and even serve to give an appearance of instability; for, as the tubes pass through the towers, the latter have apparently no adequate support. [Of course this is said in an artistic sense only, for, no doubt, the engineer has taken care that the towers are strong enough.] Here, then, we have two examples of scientific construction which well deserve, though for opposite reasons, the attentive study of the architectural student. We may expect from scientific construction even more daring attempts than these; and indeed engineering progress has been so rapid, that though the feasibility of the tubular bridge was doubted when first pro-

posed, only about twenty years ago, it is not probable that an engineer of to-day would copy it.

It is essential, therefore, for the architect to keep abreast with science, and to do his best to combine his art with it. When we contemplate some of the appalling structures of modern engineering such as those to which I have before alluded, we may, indeed, ask ourselves in dismay,—Is the world to grow uglier as it grows older? The only way to prevent this misfortune is for art and science to go hand in hand, for the architecture of the future must perforce be scientific. The great Italian architects were scientific as well as architectural. Leonardo da Vinci did the work of a modern engineer in draining the plains of Lombardy. Brunelleschi's dome at Florence was a scientific no less than an architectural triumph, and Michelangelo at St. Peter's achieved that which had not been done before. We ought not, therefore, to have any misgivings for the future of our art if we follow it with zeal, instruction, and common sense. Truth must control, originality must invent, science must construct it. Then and then only will architecture assert its position as a living art, the glory of all times to come, as of all ages past. To achieve this result the architect must work fearlessly and honestly, and he must think for himself. You can only get from a man that which is in him. Noble thoughts and high aspirations can alone lead to good work, and without these it is idle to hope for success. Trusting that what I have said to you on the glorious theme of architecture has not been inconsistent with such aims, I take my leave of you, gentlemen, as I commenced with the expression of a sincere hope that we may soon have the pleasure of welcoming Mr. Scott on his return to the post which I have partially and imperfectly filled in his absence. I will only add one word at parting by asking you always to remember that truth, honesty, and refinement are the necessary qualities of the true Christian as they are those of the real artist.

ON THE SO-CALLED RESTORATION OF OUR CATHEDRAL AND ABBEY CHURCHES.*

I NEED scarcely insist before a society like this on the moral and intellectual value of the great and ancient monuments of our art. Of all the creations of man they go farthest to enrich and adorn the material world, beautiful as it originally is. Pictures and sculptures are for the most part confined to interiors—poetry and music lie mute on the shelves of the library till read or sung; but time-honoured monuments of architecture evermore embellish the face of the earth, and increase and complete, so to speak, the furniture of the globe; growing generally into such harmony with all around them that they seem as if, with Milton's Pandemonium, they had risen from the earth, "to the sound of dulcet symphonies and voices sweet."

Taken for all in all, such works are the most interesting material objects on the face of the earth—more interesting than mountains, trees, rivers, hills or valleys, sea or sky, for they are exponents and pictures of the soul; they are man's work as well as God's work, and combine the beauty and interest of both. They are more touching to the heart than any purely natural production, for the human associations that cling around them; while, in reflecting at once the beauty and sublimity of the outward creation of the soul of man, the great fountains of all art and beauty, they hold affinity with poetry and literature, and the highest creations of the imagination and intellect. The edifices to which my remarks will more particularly refer, the cathedrals and abbeys of the middle ages, are, moreover, the most vivid and characteristic relics and mementoes we have of that period of European history when most of our institutions received their birth. Nor should they be the less interesting for being the actual

work or design of those bishops, abbots, or other ecclesiastics, to whom we are indebted for keeping alive during the dark ages the seeds of truth and knowledge—men who by their intellectual supremacy held the head of the world above the deluge of barbarism that generally overspread society; while their origin and foundation, going back, as it does, into the early ages of Christianity, places them among the most romantic and poetic piles in the world. Monuments of the religious zeal, of the form of worship, of the priestly power, of the popular prostration, of the architectural, sculptural, and pictorial skill of ages that have passed away, they speak at once to the eye and to the soul.

To confine ourselves to home. Nothing brings us face to face with all that is interesting in the history of our own country like these wonderful monuments, on which the whole minds of our forefathers have been poured out, almost realising the wish of Job that his words might be graven with an iron pen and lead in the rock for ever. They were bibles and sacred literature and history to our forefathers; and, with their acquired beauty, they are history, and poetry, and painting, and music to us. They are our poetic mountains, our Parnassi, our Helicons, our Hippocrenes, our Muses' haunts. They breathe inspiration around them, and fill the mind, through the eye, with music, as an organ fills it through the ear with vague dreamy pictures.

It is highly important that everything that can be done to preserve these structures to us should be done. It is the mode at present employed for their preservation, their so-called restoration, on which I propose to make some remarks. Let us consider what this "restoration" means—the operation to which most of our first-rate cathedrals, that of Ely, Worcester, Westminster, Chester, and many others which I cannot name, have been more or less subjected. It is cutting away the old familiar face that has looked out upon and been lovingly looked upon by twenty generations of mankind; that has watched the birth and progress of our civil and religious liberty—the face on which the lights and shadows of ages have cast; that has borne the brunt of time and change, weather and atmosphere, and other natural influences, and which have given it such tints and harmonies as rendered it more beautiful than in its prime—tints and harmonies that lend new gladness to the sun-beam, and that beggars all the artificial polychromy in the world; it is cutting away all that was visible to the eye of day and the eye of man, and of course all that was associated in our minds with the history, legends, and traditions of the past, and substituting for it a feelingless mask of new stone hewn by workmen of to-day; which is, in other words, robbing the present generation, and all unborn generations, of the legacy to them of the past ages—robbing them of what they ought to receive with increased interest and beauty, and sending down changelings to posterity. In the case of exterior restoration only,* it is putting the inside of an old church into a new outside one, the new one being supposed to exhibit the design and character which the old one exhibited six or seven hundred years ago; thus putting a gap of so many centuries between the exterior and the interior with regard to condition, and between the actual state of the building externally and its natural and proper state, to which time and weather and atmospheric action had subdued it.

So have many of our finest cathedrals been "restored"—too many for me to mention. They have had, each, its outside portion cut away, and another thin-walled church built exterior to it to enclose the lining of the old one, which is all that remains of the Mediæval cathedral; not only obliterating so many beautiful pictures, but wiping out so much historic record, which has been truly said to exist for us in these stone relics of the past, and whose united and eloquent utterances

form one of the most interesting chapters in the history of the world. The Muse of History, utterly disconcerted by these doings, must weep over many an obliterated page of British History.

To me, this "restoration," the rude hand of which has passed over gable and tower of so many of our noblest cathedrals, seems not only treason against art and beauty, but the highest species of sacrilege that could be committed. It not only robs the church; it murders the church—destroys its centuries of historic life, and the life and beauty that a thousand agencies and influences have been breathing into it, and which, once destroyed, all the genius and skill, all the power and knowledge of man, backed by all the wealth of India or California, could not recall.

Chester Cathedral, for example, which is now suffering this operation, will, so far as the exterior is concerned, cease to be the ancient Abbey Church of S. Werburg, a relic of monachism and the middle ages, and the handiwork of the Freemasons, with history and poetry in every stone; it will be virtually a new building, a piece of modern Gothic, and not a whit more interesting, architecturally or otherwise, than a new building in the same style or styles, constructed with equal ability.

It is of no use to tell me that this treatment of the edifices in question is for their preservation, because it renders them not worth preserving. No one has a more earnest wish for their preservation than I have myself, or would more rejoice in their preservation; but this mode of preserving them is worse than a farce. It is the restoration of them to oblivion and the dust from whence they came. It is the destruction of everything in them for which we love and prize them, and for which we looked upon them with a sort of religious veneration. So treated, an edifice loses its identity, and merges its existence in another, a new and comparatively uninteresting structure; the more uninteresting from its aim to be what the old one was once, rendering it a mere archæological compilation instead of a new design, which might give some pleasure by its original beauty.

We often, it is true, take circuitous roads to our ends, or use means apparently calculated to frustrate rather than accomplish them. We stoop to conquer—we go backwards a few steps that we may take a greater leap forwards; but while in our senses we never go counter to the laws of nature. We do not tell lies, for instance, to promote veracity, or rob and murder for the sake of justice and humanity. But in this work of "restoring," reason and sense are completely set aside. A cathedral is destroyed in order to its preservation; it is partially taken down to make it last the longer; which is not unlike knocking a man down to make him stand firm, or, to take a more accurate figure, it is flaying him alive, and substituting for his natural integument some foreign material for the good of his health. It is even worse than taking the skin off a man; for a man with his face disfigured and his skin destroyed, while the immortal spirit remains with him, is still a man "for a' that," the essence of his manhood being not in these external features. But of the buildings in question the essence and part of main interest is in their face or surface; and not in the interior only, but in the exterior, which by the restoring process is for ever annihilated. Kernel and shell of a cathedral are alike the product of mind, sometimes of genius.

Against this kind of restoration, in any degree, I would protest. Where it is only partially perpetrated it is proportionably destructive, as it is in the Church of S. John, Chester, which has had little more than its clerestory re-cased; for no lover of the picturesque and beautiful who visits Chester, and recollects what that building was twenty years ago, can fail to feel that virtue has gone out of it. I would protest against any kind of restoration that removes the old face, which in every instance, in our climate, must be more beautiful by the cosmetics of nature than ever it was, in its

* By Samuel Huggins. Read before the Liverpool Architectural and Archæological Society.

* Some, I believe, have been "restored" both outside and inside, which is utter annihilation; but as I am not acquainted with any instances of this, I confine my remarks to exterior "restoration," which is sufficiently destructive.

prime. Even against that lately adopted at Carlisle Cathedral, a skinning operation, or merely cutting away an inch or so of the surface, which though in some respects not so bad a one as the other, inasmuch as it still leaves old stone to the light, is yet a sufficiently barbarous one.

Nothing like to this "restoration" was ever done by the Mediaeval architects themselves, the original designers of our cathedrals, who met the exigencies of their day in reference to church accommodation in quite a different manner. They never made any attempt to restore the original design, which they would have felt to be a retrograde movement—neither agreeable to their own genius nor consonant to the way of art—but pulled down a decayed or insufficient part when it was necessary, and made what additions or enlargements were required, in their own style and from their own designs. By so doing they have approved themselves architects, and have left us the surpassingly romantic and enchanting piles which we are now disenchanting.

"Restoration" is a process to which there is no analogy in nature, as there is of every operation of genuine building. Nature builds, and invests, and cements, and tints, and gilds, and beautifies, but she does nothing analogous to this. When she restores, it is from within the operation proceeds, and works outwardly. When an animal sheds its coat, that coat is renewed with increased life and beauty from the vital principle of the animal—not replaced by a dead integument without assimilation or vitality. Nor does restoration resemble any genuine restorative operation of man, as picture-restoring or the rebinding of an old book, in which latter operation the part of main interest and value, nay the work itself, remains intact, and with greater protection than before, only the worn-out unessential accessory being removed.

Genuine picture-restoring is a totally different thing, and bears no analogy to it. It is merely cleaning the picture, removing the old varnishes, and restoring any part that is entirely obliterated to as near what it was as can be judged by the context, that is, the surrounding parts. The restoring painter does not go over the whole surface of the picture, as the restoring architect goes over the entire building, and repaint it (hiding what is underneath) to what he supposes it must have originally been. If he did this the picture would become worthless, and in proportion as it approaches this state it deteriorates in value. Let a picture by Raphael or Titian be so treated by a modern artist, however eminent, and instead of the three or four thousand guineas it might have been originally worth, it would not bring as many shillings.

Let me not, however, be supposed more conservative than I am. I do not object to the supplying the often partially ruinous buildings in question features or parts which are absolutely destroyed, to repair mutilations produced by accidents or violence, or supply omissions in the composition and design of any otherwise fine example, as in the addition of a spire, which, in furnishing a counterpoise to the nave arches, might add to the security of the building. I would in every case tenant the empty niches with statues, restore a destroyed canopy, pinnacle, or parapet, and would do anything that would really add to the perfection of the pile.

On the other hand, I would remove from the cathedral anything that has no right to its place on or about it—any excrescence or thing that really mars or veils the beauty of the original design, which, however, is of rare occurrence in England, English cathedrals being in general beautifully situated, with romantic natural accessories, and not, as are many of the French, insulted by the contact of wretched hovels built up against their sides.

If asked, in reference to their preservation, what I would do with these buildings, I would answer, Let them alone; and seeing that they are confessedly the architectural embodiments of a form of worship of other days, and of

generations differently educated to the present one, to which all their adaptations and symbolisms refer, and consequently unsuitable forms as regards their present uses, employ all the money that can be collected, and which I am quite sure would be amply sufficient for the purpose, in entirely building suitable ones, exactly adapted to the Protestant worship, a course by which we should have, in each case, two cathedrals—one a really useful one, and the other left in its integrity and beauty, a venerable relic and truthful witness of the past, instead of one bad one, ill adapted, uncomfortable as a church, and spoiled as an antiquity, for which it was chiefly of interest and value.

This plan, moreover, would open a new field for originality in ecclesiastical design, and assist architects in recovering their lost place as architects; for restoration is not the work of an architect, but of an archaeologist. It is the glorious prerogative of art and architecture that, like poetry, it makes all its materials new for the gratification of a divine instinct in man; but on the new stone mask that is set up in a restoration, instead of the old face of the building, the architect has no scope for the exercise of any of the faculties of an artist; taste, feeling, and imagination, if he have them, exist in him in vain, for no life, or sentiment, or emotion can be exercised on his work; in which, be it known, he is not aiming at some ideal type of beauty in his own mind, but merely copying the supposed forms and lines of the original building, arrived at by putting together broken bits or fragments of the old work, and consulting any lifeless drawings or engravings that may happen to be extant, and that will throw any light on the original. It is an operation merely of archaeological knowledge, industry, and mechanical skill.

(To be continued.)

THE HIBERNIAN BANK, COLLEGE-GREEN.

This building (as shewn in our lithograph illustration) is in the style known as Italian-Gothic. It consists of four storeys—the ground floor, in which is the cash office, is nearly 30 ft., and the first about 20 ft., in height. Towards College-green the main building is four bays in width, and towards Church-lane two bays, while the angle is splayed and finished in a square projection which terminates as a kind of turret at the roof, and is corbelled out at the level of first floor over principal entrance. The ground storey is simple and massive in character, deeply molded and splayed arches springing from octagon piers. The first floor arrangement consists of an arcade of semicircular arches, with deeply splayed jambs, divided by three-quarter columns of polished red granite, with boldly-sculptured capitals, from which spring molded arches, embracing tympana, sculptured with monograms and conventional foliage, the windows beneath being square-headed. The sculpture of the capitals is carried continuously round the building. The second-floor stage consists of semicircular-headed openings springing from a sculptured impost, above which is a deep frieze, enriched at intervals with sparkling bosses of polished red granite. Over the main cornice a lofty roof rises on the main building to a height of 81 ft., and over the angle to a height of 90 ft. above the street level, both surmounted with a lofty iron cresting and finials. The roof of main building is finished flat on the top, and commands a bird's-eye-view of the city and environs. The roof is broken up by a range of dormer windows, and higher up by roof ventilators of a French character. The material chiefly used in the construction is limestone from the Sheephouse quarries

near Drogheda, a stone which we would wish to see more generally used; the dressings are in Portland, and the finer ornamentations throughout are in Caen stone. The cash-office, which is of considerable dimensions, is approached from principal entrance at the angle of College-green and Church-lane. It is a parallelogram on plan, with a semicircular recess on one side. The ceiling is arched and groined, and springs from a stone cornice all round; it is covered with coffered panels arranged in a kind of diaper, with rich centre flowers in each. A subordinate building extends for some distance along Church-lane, having a front in red brick with black and white brick judiciously introduced. In this building are suites of smaller offices, with separate entrance and staircase. The entrance to suites of apartments over cash-office is from the front in College-green. The carving was by Mr. C. W. Harrison, of Great Brunswick-street. The architect was the late Mr. W. G. Murray, R.H.A.; the works were executed by Mr. George Moyers, South Richmond-street. The cost was about £20,000.

ENCOURAGEMENT TO BUILDING AT ROSTREVOR.

ROBERT ROSS, of Bladensburg, has appointed Mr. Hugh Boyle, J.P., Armagh, his agent, and has acquainted him with his desire to grant long leases and perpetuities for building ground and villa sites on fair terms and at reasonable rents. It is obvious that the carrying out of these liberal intentions on the part of the proprietor of Rostrevor will form a new era in the history of that romantically-situated watering-place. In all such cases landed proprietors must lead the way in the path of improvement. In Belfast perpetuity sites for building-ground granted by the Marquis of Donegal formed the foundations of the edifice of prosperity which is now visible in that great town, and self-reliance reared the superstructure. The prosperity of Liverpool has been promoted by the granting of leases of sufficient length to encourage building. Derry made great progress at a time when perpetuity leases were granted; for a time it was checked by a more shortsighted policy; now the Hon. the Irish Society are pursuing a wiser and more liberal course, so that for the last ten years buildings of various kinds are rising in the renowned old city. Of late there has been considerable competition among Irish watering-places, so that a stimulus has been given to improvement. Nature may have supplied her attractions of mountain and sea, with all their beauties and health-giving influences, but an advanced state of civilization requires something more, and the consequence has been that magnificent hotels and elegant lodging-houses have been erected in spots remarkable for their wildness. Tourists have at last made the discovery that Ireland affords localities as well worthy a visit as the Lakes of Cumberland, the spas of several other places in England, the mountains of Wales, or the banks of the Rhine; and accordingly the Lakes of Killarney, the wilds of Donegal, not forgetting the picturesque spots on the Down, Antrim, and Derry coasts—Warrenpoint and Rostrevor, Newcastle, Bangor, Portrush, Castlerock, and other places—have welcomed numerous visitors.

Of late it has been complained that there was a want of hotel accommodation in Rostrevor, that lodgings were difficult to be procured, and that altogether no progress was being made. Whatever ground there may have been for these complaints, the statement with which we set out shows that they are in the fair way of being removed. With such encouragement to building, Rostrevor should flourish, give a still more inviting welcome to strangers, and have the number of villas in its neighbourhood increased. Nor should

this excite any jealousy in Warrenpoint, whose spirited proprietor, Major Hall, leads the way to improvement there. There is room for all to flourish, increase their population, and attract visitors in the summer to a still greater extent than at present. The people of Newry will rejoice in the prosperity of both towns. Newry, Warrenpoint, and Rosstrevor form parts of one system, and when more building sites are granted in Newry, as more houses are required for its increasing population, when the Towns' Improvement Act—for we anticipate its passing—is in operation, when the railway has been completed to Rosstrevor, and the contemplated railway made to Greenore, this district altogether will bid fair for a degree and amount of prosperity which may excite the envy of places which are less favoured by Nature, and less fortunate in enterprising men. However this may be, we congratulate the people of Rosstrevor upon the spirited resolution which has been taken by its proprietor, who deserves great credit for his good intentions, and we hope that they will be followed up by many availing themselves of long leases, so that Rosstrevor may be made in every way worthy of its beautiful position.—*Newry Telegraph*.

THE CENSUS.

IF Census returns are to be of value, the more confidentially they are treated the more likely are they to ensure that object. Paragraph No. 2 in the instructions for filling these forms states that they are to be considered as "strictly private," and if they are not so esteemed, the next we may expect will be that Income Tax returns shall be made the subject of public scrutiny. We are aware that a correspondence has been going on for some time between the Census Commissioners and several parties who have felt that, no matter how humble the individuals, the private and family information derived from this source should never be made the subject of comment in a public newspaper. Many highly respectable persons declined filling their return, altogether in consequence, until compelled to do so under pressure by threat of being visited with the law. We are, perhaps, free to admit that an editorial article in a morning contemporary, purporting to give details of one of these returns, may have been either humbug or reality,* but fun upon such matters we consider beneath the dignity of journalism; at all events the Commissioners seem to treat it as such without investigation. But the fact of publication at all, whether in joke or in seriousness, must be calculated to do with damaging influences in future returns. A letter appeared on this subject in the *Freeman's Journal* of the 5th inst. under the signature "Anti-Gag," evidently written by some one high in connection with the Commissioners, who are naturally anxious to gloss over the breach of faith on the part of some one of their officials. This letter ridicules the objection raised by the parties we have mentioned, and the following has been forwarded to us as a reply:—

TO THE EDITOR OF THE IRISH BUILDER.

Sir,—In a recent issue of a morning journal a long letter appears under the signature "Anti-Gag," which, coming from one who states he has taken part in the compilation of former Census Returns, ought, in my humble opinion, to have been less prolix, possibly if more condemnatory of the gross breach of confidence which an official connected with the present Census has unquestionably been guilty of, it might appear more *ad rem*. Remarks as to "crooked natures," thwarting the intentions of Government, are not at all relevant to the subject which has called from this correspondent a letter filling

nearly half a column with common-place assertions, unsupported by facts, and proving nothing. Those for whom such terms are evidently intended can well afford to treat them in a manner such ill-judged expressions so well deserve. With "Protestant synods," with the "scrimmages" (I use the writer's own word) not seldom rivaling the scenes enacted in a Billingsgate community, and which the public are recently so often amused if not disgusted at reading (as occurring amongst educated (?) gentlemen), I have nothing whatever to do. With "Soupers," "jumpers," or "farces" humbugging the Census, I have still less. What I want is simple truth, without any extraneous matter, and an investigation by the Census Commissioners as to how or by what means a Census Return reached the *Irish Times* newspaper, on which the article of the 13th ult. was written. No matter how humble or illiterate the individual was who endeavoured to fill that return to the best of his ability, I am sure I will be joined by every right-thinking person in expressing disapprobation that the orthography, the names, ages, &c., should be made the subject of a burlesque article in a public newspaper, particularly when a strict promise was given in paragraph No. 2 of Census paper that the return was not for other purposes than that of a "scientific" enquiry, taken in good faith, and to be considered "strictly confidential." The correspondent alluded to, when quoting from the article in question, has omitted to give that portion of it (the first eleven lines) which tends to prove that it was written from a true Census Return "transmitted to them as a specimen," and neither as a "gag" nor an attempt at "fun," "not founded on fact." There are very many coarse and crooked natures who think it rare fun to laugh at and bring into ridicule the orthography, or perhaps the ragged coat which covers the honest and feeling heart of our less favoured brethren; of such, I think, is the writer of the article of the 13th ult., and it remains to be seen whether the Census Commissioners have the courage to "firmly" and "fearlessly" make the writer of that article feel the punishment he so justly merits, or in a "conciliatory spirit" allow the affair to rest, taking no steps in a matter which is surely their duty to have fully investigated.

In bringing this matter at all before the public, I have nothing to gain but trouble; and, in addition, it is not improbable I may acquire some enmity. However, had I the inclination, I have no leisure to continue further correspondence in reference to it, and, so far as my Census return is concerned, I have no objection to furnish it in the fullest manner, caring little how public the contents of it may become, either as to my religion, the names and ages of my family, or its orthography. Before closing, however, there is one suggestion I would take the liberty of making, and which is, that every one, even in a minor degree, connected with the taking of the Census, should be sworn not to divulge the contents of any returns, nor allow them when filled to leave their possession until handed to the official authorized to receive them. This, I consider, would be satisfactory to the public, and tend far more to the obtaining of a true and valid Census return than the "strictly confidential" in paragraph No. 2, which has been so unceremoniously disregarded, and which I feel assured, had the article I complain of appeared a little earlier, there are very many who would have declined filling their returns altogether, and who will at the taking of a future Census not forget how little reliance is to be given on the term "strictly confidential."

I am Sir, yours, &c.,
HEAD OF A FAMILY.

PHOTOGRAPHS OF CHRIST CHURCH CATHEDRAL.

WHILE all admire the liberality of Mr. Roe in endeavouring to have restored to its pristine beauty one of the most ancient and ornamental architectural monuments of the city, there are few who would not

desire that there should be preserved some record of the appearance which the fine old pile presented before the hand of the artisan touched it. A written memorial of its features might be desirable in any case, but the power of representation which photography possesses enables us to have placed at once within reach a lasting copy of its outline, as a whole and in detail, and thus far exactitude of delineation to surpass anything short of an actual model. We had recently occasion to refer to photographs of portions of the building, taken by Messrs. Millard and Robinson, Lower Sackville street, at the instance of Mr. Street, whose judgment and critical knowledge suggested those parts, a *fac simile* of which would be most desirable, and best adapted for preservation. Since then the series has been completed by Messrs. Millard and Robinson, in the addition of four other photographs, bringing the number now up to eleven. These more recent sketches comprise a full-face view of the entire building, showing distinctly the railings, tower, and relative positions of the exterior. This will be all the more interesting, seeing that the new Synod Hall is to occupy much of the space, and that the entire wing containing the chancel, and running from the nave eastward on the right, is to be altogether taken down. A second picture contains a view of the caps of the old pillars, which have stood little touched by the hand of time or disfigured by the hand of man. The pillars are situated in the north transept arcade, and are by some of the first architectural judges regarded as almost unique in Europe. The capitals still stand in the original stone cutting, unlike much of the rest of the interior, which is all plaster imitation, and the simple beauty and freedom of tracery in the rich involutes exhibit a softness and grace which is utterly wanting in the sharpness of the imitations already alluded to. The next picture represents completely the interior of the chancel, looking along its length towards the great organ, and as this is altogether going, and no vestige of it will remain, the photograph must be regarded as the most interesting memento of any connected with the building, the more especially as every item of its contents is minutely reproduced. The fourth is the old Norman doorway, which is one of the most perfect portions of the ancient structure remaining. The flutings, mouldings, and stone carvings which surround the arched front are as well preserved as in the portion of the south transept arcade; and the style of carving points it out as being almost the last solitary companion of the ancient pillars referred to above. The whole series are admirably finished, and while they reflect credit on the firm which has produced them, they will ever be treasured by antiquarians as relics of a building whose charm is heightened by historical associations.—*Daily Express*.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homoeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

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GOLDSMITH'S WORK.—The progress of fine art manufacture in this branch of trade is strikingly exemplified in a little work published by J. W. Benson, of 25 Old Bond-street, and of the City Steam Factory, 58 and 60 Ludgate-hill. It is enriched and embellished with designs (by Italian, French, and English artists) of brooches, bracelets, earrings, and other articles, suitable for personal wear, or wedding, birthday, or other presents, with their prices. Mr. Benson (who holds the appointment to H.R.H. the Prince of Wales) has also published a very interesting pamphlet on the rise and progress of watch and clockmaking. These pamphlets are sent post free for two stamps each, and they cannot be too strongly recommended to those contemplating a purchase, especially to residents in the country or abroad, who are thus enabled to select any article they may require, and have it forwarded with perfect safety.

NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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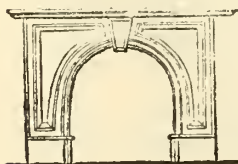
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TESTIMONIALS.

From WILLIAM TITE, Esq., M.P. for Bath, and Architect of the Royal Exchange, London.

House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have used both the sorts of Cement manufactured by your firm, and that of Messrs. Francis and Son; I mean the Cement usually called Roman Cement, or the more recent introduction of Portland Cement. I believe these Cements, manufactured by either of your firms, to be equally good. I know no difference, chemically or practically, between them; and I should use, and authorize to be used indifferently, either one or the other. You are at liberty to use this note, if you think it necessary.—I am, Dear Sir, your obedient servant,
Messrs. White & Son. (Signed) WILLIAM TITE.

From R.O. MINNIE, Esq., Surveyor to Board of Ordnance, London.
War Office, Pall Mall, London, S.W.,
3rd March, 1864.

GENTLEMEN.—In reply to your request, I have much pleasure in stating my favourable opinion of the quality of your Portland and other Cements, which have been extensively used in the Public Works connected with the War Department at home and abroad, especially in several of the fortifications now being erected in this country. On all occasions within my knowledge the quality has been equal to that of any other manufacturer, and has given great satisfaction.—I am, gentlemen, your obedient servant,
(Signed) R. O. MINNIE, Surveyor.

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The Irish Builder.

VOL. XIII.—No. 275.

The Dublin Main Drainage—The Corporation and the Press.



UR professional cotemporary in London seems pretty well posted up on all matters of importance relating to the Irish capital. The Corporation

of this city are pretty often reminded of their duties, and their repeated failings in the performance of them. However strong the censure of our cotemporary may appear, there are some among us who do not think they are deserved, while there are many more who are of opinion that they are not half strong enough. We must say for ourselves that we cannot take any great exception to the remarks of the *Builder*, for they are based upon incontrovertible facts. The Main Drainage scheme of Dublin, if properly carried out, would confer incalculable advantages upon the city, but we have no guarantee that the work will be a profitable one, though no one can gainsay its desirability. Nor can we be convinced by any show of reasoning that the proposed scheme for the disposal of the sewage, by letting it into the mouth of the harbour, is anything more than a most unwise and fruitless proceeding. The utilization of town and city sewage for irrigation and agricultural purposes is much too important a matter at the present hour to be overlooked or treated lightly.

Dublin is ill able to bear her present burden of rates and taxes, without any increase being made, but as bear and wince she must under an additional turn of the screw, it behoves her citizens to know exactly what great hope is begotten of their present submission. We are interested so far as all good citizens must be who desire public improvement carried out and public health established, and native resources and materials developed and utilized in conjunction. How far Irish labour and workmanship, and other concomitants indigenous to the soil, will be availed of we can only surmise, for jobbery in public boards has many oblique issues. Our port and harbour is now being improved; but with these improvements complete, they are susceptible of much more lasting and remarkable ones. We trust that the Main Drainage scheme will, therefore, be something to feel proud of, if it be ever satisfactorily completed in our lifetime.

We cannot see why there should be always such a reluctance evidenced on the part of the Press of this city to honestly and fairly criticise the acts of public bodies. This shrinking from commenting on the shortcomings of public measures proposed by public men or local and corporate bodies is becoming a great evil. There is far too much of the personal instead of the public interest

mixed up with it. The obvious consequence of all this is, that journals at a distance or in another country are led to take cognizance of matters, which is neglected or avoided at home. In striving to please one party and to not offend the other, pernicious measures are allowed to pass very often, and the public schemes of public men, like their personal schemes, remain inviolate from the great brunt of public discussion and criticism. The *Builder* in London is never slow to speak its mind on any scheme proposed by public bodies in England designed for the public benefit, and the general Press helps it out by extracting or drawing attention to its remarks. In Dublin, we are sorry to say, this reciprocity of public sentiment is hardly practised, and the courtesies of journalism are of a very distant nature. We are always ready ourselves to assist in making known what any other journal proposes in our line of a practical character, and we are only too happy in giving both the public and the journal in question the benefit of extended publicity.

Ireland will never be materially benefited by the isolated views or propositions of any one newspaper or newspaper staff. All our labours for good are required irrespective of sect or party. No little coterie of politicians, whether in council or vestry, can assume to regulate public opinion on matters of vital interest to the general public. We have a city to feel proud of, both architecturally and naturally viewed, but her sanitary condition is far from what it ought to be. The Main Drainage scheme, however wisely carried out, is only means to the end, for in our houses and in connection with them, as well as in our river and sewerage, there are many evils to combat and overcome. Compulsory education and cleanliness, along with native enterprise, will, we hope, in time accomplish our desires—**A PROSPEROUS AND A HEALTHY CITY.**

SUGGESTED SITES FOR SYNOD HALL, CHRIST CHURCH CATHEDRAL.

DUBLIN, long distinguished by the possession of two cathedrals, has been latterly additionally so from the single-handed restoration of one of them by the munificence of one of her citizens. Without having been open to the charge of living in vain expectations, her citizens might have indulged in the hope that no city of the empire would be able to dispute pre-eminence thus given her; but yet it required the restoration by an individual of the second of her cathedrals to make her pre-eminence symmetrical, complete, and unassailable. And now it is to be made all of these by an act of liberality which will for ever couple the name of Roe with that of Guinness; for, as is now well known, Mr. Roe has undertaken the restoration of Christ Church Cathedral.

The means for restoring Christ Church Cathedral having been provided in so praiseworthy a manner, "nothing is now wanting to make this" restoration "one of the most successful architecturally . . . than that the architect to whom the work is entrusted should second Mr. Roe's liberality by sufficient zeal, care, and skill." As the quoted words are those of the architect employed, and that architect is Mr. Street, there can be no doubt that an abundance of these qualities will preside over the work, preserving with reverent care everything in the existing structure which is at all worthy of preservation; restoring lost features by exact copies of the

corresponding ones in the instances in which these exist, and where they do not, supplying their place by an abundant knowledge, which will prevent all possibility of it being said of even the most hypothetical feature—"This could not have been in the original."

Mr. Street's investigations have led him to the discovery of the plan of the church as it was originally built in the thirteenth century, and as it was previous to the building, in the fourteenth century, of the existing choir. He has proved incontestably—by making out the plan of the crypt, and from some peculiarities in the parts of the original choir which still exist—that this was very short, with a semi-circular apse, round which the aisle was continued; whilst east of this aisle were three chapels, square-ended, and of very small dimensions. In the angle between the apsidal aisle and the south-eastern of these chapels there was a small circular turret, as the remains prove, and Mr. Street deems it probable that a similar one existed at the opposite point.

Mr. Street remarks* "that in the fourteenth century it was thought necessary to make an enormous change in the plan and dimensions of the choir. It was extended from its old modest length of less than 30 ft. to the rather grand dimensions of 102 ft., and if the character of the work had been equal to its extent there would have been nothing to complain of. Unfortunately this was not the case; and even when first built it is impossible that the fourteenth century choir of Christ Church can have been really a fine work. In order to economize as much as possible, the architect ventured to use the south wall of the new Lady Chapel, and so involved himself in the necessity of making the great bend to the north in the eastern half of the choir, which is noticed by everyone, but for which I have never seen the true reason given, because people have not realized the history of the successive additions to the fabric. The Lady Chapel was built outside the church, and therefore its divergence from the axis of the nave was of no consequence; but when its outer wall was made use of to save the cost of building a new north wall to the choir, this divergence became of the utmost importance, and involved a blemish, and an unsightliness which no architectural skill could have entirely surmounted. But as far as I can judge there never was any great exhibition of such skill, and the new choir, with its awkward bend, its absence of groining, and its want of striking architectural features, must have formed a sad contrast from the first, to the exquisite art displayed in the western half of the Cathedral."

This choir, then—justly described by Mr. Street† as "the growth to some extent of chance and accident," and the preservation of which is made by the completely modern character of all its features, of no importance whatsoever from an antiquarian point of view,—he proposes to remove, so as to allow of the rebuilding of this portion of the Cathedral on its original plan. The course he intends to pursue in regard to the choir may be fairly considered a bold one; but when the foregoing most accurate description of the present choir is considered, nothing short of this course seems admissible; and, considering the materials Mr. Street has for his guidance

* In his "Report to the Dean and Chapter of Christ Church Cathedral, Dublin, on the Restoration of the Cathedral Church." Dublin: Hodges, Smith, and Foster. 1868.

† In his "Report on the Rebuilding of the Choir of Christ Church Cathedral, Dublin, and on the Erection of a Synod Hall for the Church of Ireland." Dublin: Hodges, Smith, and Foster. 1871.

in the plan of the crypt and in some existing portions of the original choir, it does not seem possible to doubt that he is right in saying that there are "few works of restoration which might be undertaken with more certainty than a really ancient feature is being recovered," or that both the interior and exterior effect of the choir and chapels built according to Mr. Street's designs will be very fine.

In 1562 the stone vault of the nave fell, and carried with it the greater part of the south arcade and of the south aisle. The arcade was not restored, a solid wall being now the southern boundary of the nave, to which there is no southern aisle—vestry, library, and chapter-room at present occupying the position on which this should stand. Mr. Street proposes to restore the south arcade, triforium, and clerestory of nave, and its south aisle, the corresponding parts on northern side of nave all existing in very much their original state. He proposes to remove "a vast and unsightly mass of masonry" which has supported the north aisle on the outside, and "to build up large buttresses opposite each of the principal columns of the nave on the north side, to support the clerestory from these by means of flying buttresses, and to strengthen the lowest tier of arches by means of groining in stone." "In this way," Mr. Street writes, "I believe that we may make a really good work of this north side of the church, and keep it from becoming any more out of the perpendicular." The difficulties in the way of restoring the northern walls of the nave to the perpendicular by any means short of taking down and rebuilding them, are perhaps insuperable: of this Mr. Street rightly says, "if they [the walls] were taken down I fear it would be most difficult to rebuild them without importing so much new masonry and carving as to make the work really a new work, and so deprive it of what is beyond question one great claim to respect—its antiquity." And there seems no cause to fear that the flying buttresses Mr. Street proposes will not be as effective as he expects; still the very considerable divergence of these walls from the perpendicular is, and must always be, a great blemish, and their restoration to it is to be greatly desired. The opening of the windows in the northern aisle of nave will be rendered possible by the removal of the vast and unsightly mass of masonry already mentioned, and "thus this old part of the church would be restored thoroughly to its old state."

The present floor of the nave is considerably above the original level, and this "destroys to a serious degree the old proportions of the fine clustered columns," and Mr. Street proposes to "lower the nave floor to its old level, and repave the whole of nave, aisles, and transepts with tiles copied from the old pavement, much of which seems still to remain buried under the present floor."

Mr. Street proposes to deal with the western front by inserting in it a restoration of its original window, a new door, and a new window to southern aisle. But the vast and unsightly mass of masonry in front of northern aisle can apparently serve no purpose when the masonry along the side of this aisle, which Mr. Street justly describes in these words, is removed, it would seem intended to let remain, though whilst it does the western front can be little else than an eyesore.

The nave is to receive a groined roof, but in wood, because "the old walls would not stand the weight and thrust of a stone vault, and this expedient, of which there are many old examples, is, therefore, as justifiable as it is unavoidable." The walls of both aisles and clerestory are to be finished with "the characteristic Irish battlement."

The restoration of this Cathedral, as proposed by Mr. Street, would, were the northern walls of nave restored *in situ* to the perpendicular, and the useless masonry which disfigures the western front removed, leave nothing to be desired; and Mr. Street's confidence "that no one would be disappointed in the result if a proper restoration were made," would, in all likelihood, be realised.

Mr. Roe has not only supplied funds for the

restoration of Christ Church Cathedral, but has also undertaken the erection, at his own cost, of a hall for the use of the General Synod, and Mr. Street has made a design for this building. This design comprises a hall 100 ft. long and 40 ft. wide, with division-lobbies on either side, and subsidiary buildings providing accommodation for committees and for other purposes.

In reference to the Synod Hall, Mr. Street writes:—

"A building which would contain such rooms would necessarily occupy a large area; and there is only one part of the ground, on the south side of the Cathedral, which seems to me to afford the required space, without interference with the architectural effect of the exterior of the Cathedral. The greater part of the south side of the Cathedral will, if my plans are carried out, be new work. The south side of the nave will be a repetition of the north side, and as there is no difficulty about seeing the north side, it is not very important if the new south elevation is not entirely open to view. But there is no obtainable view of the choir, save that from the south and south-east, and it would therefore be a great mistake to shut the church out from view at all on this side, which would be the effect of any erection of buildings for the Synod on the south-east side of the Cathedral. It follows, therefore, that the proper site for the Synod Hall is on the western portion of the ground south of the Cathedral, belonging to the chapter. . . . Here, therefore, I should propose to place the Synod Hall and the buildings connected with it."

It would appear from the foregoing that Mr. Street, in choosing a site for the Synod Hall, was obliged to confine himself to ground in the possession of the Chapter of Christ Church Cathedral, and it does not seem open to question that he has selected the best site which, with such a limitation, is obtainable. But the contemplated use of this site is open to most serious objections, and it may not be too much to say that, if the Synod Hall buildings are erected on it, a great and irreparable error will have been committed.

The statement that "there is no difficulty about seeing the north side" of the nave, is very questionable; but, even if it were strictly correct, the very fact that it is the north side, and has therefore what is certainly an objectionable aspect, is a reason for not having it the only unobscured side, the strength and importance of which it seems impossible to too strongly insist upon; for it should be borne in mind that this building is surrounded by the heavy, clouded atmosphere of a northern city, and that it is built of a very dark, dull stone. It must be said, too, that neither the newness of the south side of the nave, nor the fact that it will be a repetition of the (present) north side, could, under any circumstances, go very far towards proving that it was of little importance whether that which would hide or obscure this portion of the cathedral was done or left undone; and when it is considered that the original appearance of the nave will, in the future, have to be gathered from the (new) south elevation, because of the necessary addition of flying buttresses to the northern side, completely altering the original design, the abstract force of this argument is greatly lessened (perhaps even the argument itself becomes inapplicable). Besides, unless the walls of the northern side of the nave are restored to the perpendicular (and it is not proposed to do this, which is, perhaps, not feasible), this part of the building can never have a satisfactory appearance.

But even though the foregoing objections to the erection of the Synod Hall on the site contemplated were inapplicable or of small force, the objection that, if this be done, there will be no view (or at all events nothing like a satisfactory view) of the whole Cathedral obtainable, and that, consequently, the varied and beautiful effects which the combination of its different parts would, when its restoration is completed, afford, will be lost, would remain. That it is necessary for such a structure as Christ Church Cathedral to have one side free from buildings in close proximity to it, in order to allow of an adequate conception of it being obtained, seems a proposition which can scarcely be dissented from. Such a free side this Cathedral now has, and along this

side runs the great public thoroughfare from which it is generally, and can best be, seen; but the erection of the Synod Hall on the site contemplated would deprive it of this advantage.

Referring to the site he has chosen for the Synod Hall, Mr. Street writes:—"Here originally stood various buildings connected with the Cathedral. These were of large extent, and though used latterly for an exchange and courts of justice, were all probably in their foundation coeval with the erection of the church." Now, although it is quite certain that buildings connected with the cathedral stood on a portion of the site on which it is intended to erect the Synod Hall, it is no less certain that these buildings must have been of considerably less extent and magnitude than those now contemplated; and it is to be remarked that these buildings were most probably residences, and that they were therefore erected for purposes essentially different from the proposed Synod Hall buildings. So far, then, as the past of this cathedral is concerned, there seems little or no warrant for erecting the Synod Hall on the site contemplated.

Mr. Street writes:—

"A room of the large size of the Synod Hall abutting immediately on the Cathedral may be held by some to be damaging to the latter. I cannot share such a feeling. The architects of our old Cathedrals never entertained it. Here at Christ Church they built on the very ground I propose to build on, and if examples of the same sort of thing are required, none is more apt than that of Durham, where the enormous Dormitory, now used as a library, abuts on, and at right angles to, the western part of the south side of the nave, precisely in the same position as that which I propose for the hall here."

Now, putting aside the question as to whether the mediæval architects, in crowding their buildings together to the hiding of much of them, committed an error or otherwise, it must be said that the erection of the Synod Hall on the site contemplated does not seem in accordance with their practice, which was to keep a wide space along one side of the church free from buildings. At Durham notably there is a large area to the northern side of the Cathedral free from buildings, which is not the case at Christ Church and this alone is sufficient to preclude the use of the Durham Cathedral buildings as an example in support of the proposed location of the Synod Hall at Christ Church.

But supposing that, notwithstanding this apparently decisive argument against it, it be held to be allowable to use the Durham Cathedral buildings in support of the contemplated erection of the Synod Hall abutting against the south-western portion of Christ Church Cathedral, it remains to be seen how far this proposal is really supported by what has been done at Durham. The question is, whether the dormitory at Durham is relatively to the Cathedral there of such a size as to afford support to the proposal to erect a building of the size of the Synod Hall abutting against a building of the size of Christ Church Cathedral? and it may be said that, giving the respective dimensions of these four buildings is giving an answer in the negative to this question.

The length of Durham Cathedral is 411 ft., and the nave and choir are (including their aisles) each 80 ft. wide. The nave is 175 ft. long, and the distance from end to end of the transepts is 170 ft. The area of this Cathedral is about 44,000 square feet. The Durham dormitory is about 200 ft. long and 45 ft. wide, and its area is, consequently, 9,000 square feet. The length of Christ Church Cathedral (as proposed to be restored) is about 210 ft.; width of nave and choir (including their aisles), 75 ft. each; the distance from end to end of transepts, 105 ft. The nave is about 100 ft. long, and the area of the cathedral about 16,000 square feet. The length of the Synod Hall is 103 ft.; width (including division lobbies) is 68 ft., and the area is consequently about 7,000 square feet. Much comment on these figures seems needless, but attention may be specially directed to the fact that, whilst the width of the

dormitory at Durham is about a fourth of the length of the nave against which it abuts, the width of the Synod Hall (including the division lobbies) is about two-thirds of the length of the nave of Christ Church Cathedral. The vertical (which, as regards the matter in hand, are even more important than the horizontal) dimensions are as follows:—The nave of Durham Cathedral (about 100 ft. high) is at its western end flanked by two towers, each 138 ft. high, and it is against the southern of these that the dormitory about 70 ft. high abuts. The height of Christ Church Cathedral is about 70 ft., and its western end is destitute of towers. The height of the Synod Hall (as shown on plans) is 60 ft. It seems impossible to avoid concluding that, though the dormitory at Durham is completely dominated by the Cathedral there, because of its greatly inferior dimensions, the Synod Hall—if erected on the site contemplated, and of the dimensions proposed—would be scarcely if at all in subordination to Christ Church Cathedral, and, consequently, that what it is proposed to do here is not supported by what has been done there.

The great difference between the levels of the floor of Christ Church Cathedral and that of Christ Church Place seems to have escaped Mr. Street's notice, for the floor of the Synod Hall, as shown in his designs, would be about 8 ft. below the level of that street. The raising of the level of the floor of the Synod Hall some 8 ft. above that shown in the designs would seem an absolute necessity; and this, besides being for other reasons most objectionable, would, it may be assumed, result in making the height of the Synod Hall all but equal that of the Cathedral, and thus the force of what has been said as to the want of the subordination of the one building to the other would be vastly increased.

The foregoing considerations seem to establish that the erection of the Synod Hall on the site contemplated would have a most injurious effect on the exterior of Christ Church Cathedral. Some objections to its erection on this site because of the effect it would have on the interior of the building may be shortly stated. The southern aisle of the nave would (if the Synod Hall were erected on the site contemplated) have only one window in its southern wall instead of (at least) four, which it might otherwise have. When the situation and aspect of this wall are considered, and the great increase in the beauty of the interior which would result from a row of stained glass windows in it properly felt, the detrimental effect which the want of these windows would have on the interior of the Cathedral can be scarcely too highly estimated.

The conformation of the ground to the west of the Cathedral renders the western door an inconvenient entrance, and it must be felt very desirable to provide another doorway in a more accessible and convenient situation. It seems obvious that the best position for this doorway would be somewhere in the side wall of the southern nave* (probably in the second western bay). But the erection of the Synod Hall on the site contemplated will not only prevent such a location of a doorway, but will necessitate the closing of the existing doorway in the southern wall of the south transept. Mr. Street proposes to place an entrance in the eastern wall of this transept, which can scarcely be considered a convenient position, and which is besides objectionable, because it is apparently necessary that the doorway in this situation should be one having two axes.

Finally, it is to be remarked, in connection with Mr. Street's own observation in reference to Christ Church, that "The scale of the whole Cathedral is small, as compared with that of most of our English cathedrals," that he might have written with equal correctness that the Synod Hall was very large as compared to the structures analogous to it, viz., the chapter-houses of these cathedrals. An

example is wanting of how the mediæval architects would have located a very large chapter-house in connection with a small cathedral; but it may be concluded as certain that they would not have solved this problem by the erection of a building of the same dimensions as the nave, at right angles to and abutting against this part of the cathedral. And this may fairly be taken as what it is in contemplation to do at Christ Church Cathedral.

Assuming, then, that it has been proved that the site contemplated for the Synod Hall is a most objectionable one, it becomes necessary to shew that it need not be put to the intended use because there are no better ones contiguous to the Cathedral. So far is this from being the case, that there are three such sites, the least desirable of which seems preferable to that selected.

The first and best of these sites is that extending from the eastern end of the Cathedral (as proposed to be restored) to Fishamble-street. The merits of this site need not be dwelt on at length; but it may be remarked that the erection of the Synod Hall as designed by Mr. Street on it would scarcely, if at all, interfere with the views which will be obtainable of the eastern end of the restored Cathedral, whilst the whole mass of the latter building, being opposed to that of the Synod Hall, would dominate it. Neither of these buildings obscuring or hiding the other, the dignity and apparent magnitude of the group they would form would be greater than would result from any other disposition of the Synod Hall, and the latter building would have the great advantage of having a southern aspect to its length. The fact that the whole of this site is not in the hands of the Chapter of Christ Church Cathedral may be taken as the reason why it was not chosen as the site for the Synod Hall. It must be said, however, that, independently of the question of the proper site for this building, it is extremely desirable that the whole block of houses (none of which are of great value) between the Cathedral and Fishamble-street should be removed; and it is difficult to believe that, when a single member of the Church is doing so much, the Church cannot afford to do what is comparatively, if not absolutely, so little. The member is about single-handed to restore the Cathedral, and to build a splendid Synod Hall. Will not the Church provide a thoroughly worthy site for the latter building?

The second alternative site for the Synod Hall is that bounded by St. Michael's Hill and Lane and High-street. The property on this site—which is not already in the possession of the Church—is both smaller and of less value than the similar property on the first alternative site. The only remark it seems necessary to make in regard to this site is, that a possible objection to it that it is separated by a street from the Cathedral might if necessary be obviated by the construction of a subway under St. Michael's-hill.

But should this site, too, prove to be beyond the ability of the Church to provide, there is a third alternative site, the portion of which not owned by the Church is inconsiderable and of small value. This lies to the north-east of the Cathedral, and extends across John's-lane. The closing of John's-lane would be the easiest way of rendering this area available as a site for the Synod Hall; and, bearing in mind the situation and nature of this lane, such a course seems admissible. Should a public passage, however, in this immediate locality be deemed necessary, it could be readily provided along the western and northern sides of the Synod Hall, supposing it erected on this site; or it is possible that such a passage as would be necessary might be provided underneath the Synod Hall, the levels of the surrounding ground facilitating such an arrangement.

The erection of the Synod Hall on either of the latter sites would necessitate the removal of an existing church. It will be generally allowed that there is nothing in the architecture of either of the churches on these sites (St. Michael's and St. John's) which renders them worthy of conservation.

That the removal of one of them would not effect an objectionable curtailment of church accommodation seems proved by the following remarks from a leading article in the *Dublin Evening Mail* of May 1st, 1871:—

"St. Werburgh's is one of four parishes whose joint Church population is under 4,000, and whose churches are within speaking distances of each other, and of the Cathedral of Christ Church. There have been up to the present time some eight or nine active and zealous clergymen employed as rectors and curates in St. Werburgh's, St. John's, St. Michael's, and St. Auden's. Surely this is a waste of power. . . . The requirements of the Church people in the four parishes would, we should think, be satisfied by two churches well worked, both in regard to pastoral care and schools. St. Werburgh's and St. Auden's should certainly be maintained, as being most distant from each other. The former is a fine church, and the latter possesses additional interest in its antiquity and in the monuments it contains."

It would seem, then, safe to assert that the site on which it is contemplated to erect the Synod Hall is as little the only possible one as it is free from the gravest objections; and that if this building be erected on it, it will be to the great and irreparable detriment of Christ Church Cathedral, and to the mar-
ring of Mr. Roe's splendid generosity.

NEW TOWN HALL, KEADY.

THIS building was formally opened on Thursday week. It has been erected from the designs of Mr. Fitzgibbon Louch, Belfast. Mr. John Collen, Portadown, was the builder. The style of architecture employed is Venetian Gothic. The lower stage is built of Dungannon freestone, chiselled. The upper stage is of red brick, with black and white brick bands, and alternate voussoirs and freestone dressings. On the angle of the building is a circular clock-tower 65 feet high, in which is the entrance door and stairs to court-house, reading-rooms, &c., having a triple panel over, carved with the arms of Ulster, date, and arms of the Kirk family. The stairs are lighted by triplet windows, with carved caps, shafts, and bases, on two stages. The clock is supplied with illuminated dials, and a bell, the gift of John Kirk, Esq., D.L. The belfry stage is pierced with twelve openings, having carved caps, shafts, and bases, and filled in with louvres. The roof of the tower is conical, slated, and surmounted by a large gilt vane. The gates to the market house have the upper panels open, filled in with wrought-iron scrolls and ornaments. The windows of the reading-room have polished granite shafts and carved caps and bases. The roof is of high pitch and the ridges are covered by ornamental cresting and bannerets. The ground floor comprises the market-house, 42 feet square, with office for weighmaster, and is fitted up with stalls, and counters for the buyers. The upper floor contains a court-house, 42 ft. by 20 ft., and 18 ft., high, fitted up with magistrates' bench, raised on a platform; sessions clerk's bench, with accommodation for solicitors, &c.; and dock. Adjoining same is the reading-room, 36 ft. by 16 ft. 6 in., and 18 feet high, communicating by folding doors, 24 ft. wide, and 10 ft. 6 in. high. A private stairs leads to the magistrates' and solicitors' rooms. Retiring-rooms are also provided. The rooms are well lighted and ventilated, and when thrown open for public meetings or concerts will accommodate fully 600 persons. The handsome gas brackets have been supplied by Messrs. Riddel & Co. The reading-room has been furnished by Messrs. Coates & Co., Belfast.

A NEW CEMENT.—The *New York Druggists' Circular* gives, on the authority of Prof. Boettger, the following cement, which admits of being coloured, and which hardens with considerable rapidity. If finely powdered chalk is stirred into a solution of water-glass (silicate of soda) of 33 deg. B. until the mixture becomes thick and plastic, a cement is obtained which will harden in between six and eight hours, possessing great durability, and applicable for domestic or industrial purposes. Any colour desired can be obtained by uniting any of the coloured metallic oxides or sulphides with this composition.

* Indeed Mr. Street, in his report of 1868, expresses himself as "inclined also to remove the doorway from its modern place in the south transept, and insert it instead in the south aisle wall."

ON THE SO-CALLED RESTORATION OF OUR CATHEDRAL AND ABBEY CHURCHES.*

(Continued from page 134.)

THE plan I propose, moreover, would yield opportunity for resolving the best form for Protestant churches and cathedrals, and showing that the Gothic style of architecture would consistently lend itself to any form—to the right one as well as to the wrong one—to a compact octagonal, hexagonal, or circular form, as well as to the cruciform.

As to the old buildings, I believe in a majority of instances, with their enormously thick walls, they have sufficient strength left in them to brave the tooth of Time, and be the delight of all men of taste for ages to come, increasing in interest and picturesque beauty for every succeeding generation; and when they fall to ruins being more interesting and beautiful still—a state to which, however, if duly protected, they would be many centuries in reaching; for those buildings that have reached it, as Fountains Abbey, and the abbeys of Melrose, Kelso, Elgin, Jedburgh, it is well known did not reach it by the action of any agent that is now operating on our cathedrals, or by anything short of violence, accident, war, or religious fanaticism of the Reformers. “Preservation,” not restoration, should be our watchword, and our motto “Do as little as possible, so that the old fabrics only hang together as long as possible.”

In especial cases especial means of preservation might be used. Where the historic interest of a church was surpassingly great, I would do with it what we should all do with an object of great artistic beauty or precious material, when that object was only a few inches in size either way, instead of so many hundred feet, and what I have a faint recollection of having seen suggested by some writer several years ago. I would put it under a glass shade. Suppose we had amongst us a building in which St. Peter or the Apostle of the Gentiles was known to have taught, or in which their Master himself had taught, I would prevent farther injury from weather by enclosing it around and above in a sort of crystal palace of iron and glass, with a passage of some ten feet all around between the building and its case.

I appeal to the educated common-sense of mankind generally whether there is not a vast difference in interest, leaving artistic or acquired natural beauty out of the question, between the genuine ancient building and the same building as restored: one the headwork and handwork of men of other days, and very different days from ours, the other the mere handwork of our contemporaries. I feel sure that a thousand intelligent travellers, if they answered consistently with their published remarks, would reply to me in the affirmative. Nay, I could quote the remarks of as many in journals, diaries, itineraries, note-books, and the like, which would be quite tantamount to such a reply. I happen to recollect more distinctly than any other those on the neighbourhood church of Bebbington, in Cheshire, of the well-known American writer, Nathaniel Hawthorne, which I will give you as a specimen. What is it that interests and attracts him in this church? It is that every part of it, especially the steeple, “looks old, old, old.” “There it stands,” says he, “among the surrounding graves, looking just the same as it did in Bloody Mary’s days; just as it did in Cromwell’s time.” What could he have said about this church, or would he have noticed it at all, if all of it that Queen Mary’s or Cromwell’s days had looked upon had been cut away, and everything about it was new, new, new, as will shortly be the case with the once venerable cathedral of the diocese? To the non-professional, merely educated man, who takes no cognizance of artistic or picturesque beauty, but only of the historic interest, the difference must be sufficiently great. But even the historic interest is more felt by the architect, or others capable of understanding at the same time the changes

of style and of feeling the full force of the beauty that time and climatal action bestows.

Suppose, sir, your annual tour this summer to be into the East—to Egypt, to Syria—you wish to see those far-famed wonders, the Halls of the Pharaohs, built before the exodus of the Israelites, the birth of Moses or Job, or even the Call of Abraham; or you would visit some of the earliest Christian churches and monuments of Syria and other parts of Asia, as the Church of SS. Sergius and Bacchus at Constantinople, the Church of the Nativity at Bethlehem, the Mosque of Omar at Jerusalem, supposed to be the church built by Constantine over the tomb of the Saviour. Some one edifice would probably attract you to its site more than any other. Imagine yourself finding this one edifice “restored,” and you could now neither see nor touch the original building; would you not be greatly disappointed, and anxiously inquire if there did not remain untouched some small bit of the ancient work, even a few square feet or inches, and if you found such invulnerable bit of the original building, would it not be in that the interest for you would henceforth inhere? Should you go on to the far East, and visit the cave-temples of the Hindoos, what would be your feeling of disappointment if you found that those mysterious works of the early Brahmins and Buddhists, the original of which is lost in the night of ages, had just been re-cased or re-lined by English masons?

But we need not go to Asia or the East for illustration of the principle I contend for; sufficient may be found in Europe and nearer home. The west front of the Burg at Vienna, the Castle of S. Angelo at Rome, the Ducal Palace at Venice, the Tower of London, the Kremlin at Moscow, are trophies snatched from the jaws of Time, and prized, I believe, as such by their respective nations. Let these be built over with new stone, would they be so still? Re-case the White Tower in London, restore the Bloody Tower on the Thames, could they be shown to the traveller any more as the work of Gundulf the Weeper and Henry III.? I have myself seen and touched, with intense pleasure, in the foundation of the walls of Chester, blocks of masonry that bear the unmistakable impress of the colossal hands of the Romans, and so coeval with Christianity itself. Think you I should have had the same pleasure if these stones had been entirely covered with new materials, and I could neither see nor feel the original work, which, in receding from my touch and sight, might as well be a thousand miles away, or in Rome itself?

I once made a journey to York solely to see its venerable Minster, which I sauntered through and around with deep interest and delight. What was it gave me this pleasure? It could not in any great degree be the beauty of the general design and composition, nor that of the sculptural detail, for these were not new to me; I had seen them on paper a thousand times before. It was the acquired beauty of the structure, the beauty bestowed on it by the artist hand of Nature, and which no views of it could give. It was its historic associations and reflections of the mind of other times, of the intellects and hearts and fancies of men of a most mysterious age. It was these that so delighted me, and not the magnitude and design of the building. If I could have found such a structure as this, or the corresponding one of Lincoln or Wells, or Lichfield or Peterborough, renewed without disappointment or decrease of pleasure, I must have been insensible to the rainbow hues of some of the most exquisite pictures which the pencil of Nature has spread over this world; as well as blind to the still more touching pictures, warm and rich of the old times, which start into life to the inner eye round such ancient and romantic piles. In a word, I must have been void of imagination and feeling for the past, and a stranger to association of ideas—faculties

Which out of all the lovely things we view
Extract emotions beautiful and new—

and consequently without claim to the title of artist.

It is to the actual surface which we have seen and handled that association clings, whether the object be wall or ground. “My battlefield has been altered,” said Wellington, disappointed, on revisiting Waterloo after the soil had been dug up—the soil on which he had struggled with Napoleon—to form the great monumental mound there raised. It was the same operation of the law of association that led the Pisans to bring earth from the Holy Land, on which holy feet had trod, to floor their Campo Santo; that caused the bringing home of the sculptured linings of the Assyrian palaces, and that even originated the Crusades. It is what gives interest to the interior of the Egyptian Catacombs, the Catacombs of Rome and Naples, and makes the visitor so delighted at Pompeii. It is a source of mental gratification, acknowledged through all literature and history. Fewer would visit Southern or Eastern lands if the sun of those glorious climes shone only on restorations. Fewer would visit even our British Museum if the relics of the Parthenon and other ancient shrines, and the winged bulls of Assyria, were replaced by casts.

It is generally supposed that for the loss of all the historic interest of a restored edifice, and of the beauty that time and weather had bestowed on it, we are compensated by getting back its original architectural beauty; that is, that the building is actually restored to the condition in which it came out of the hands of its author. But this is a great mistake—nay, more, I believe that “restoration” not only does not bring back the original beauty of the building, but it takes away what little may have remained of it. I do not see how any edifice that is really a work of art and the offspring of cultivated taste, in which, however dilapidated its condition, there must be some lingering, some vestige, of its original charms of outline and composition—I do not see how it can be at all treated in the way in question, by the most able and delicate hand, without injury. The soul and spirit of architecture is enshrined in its surfaces, and all charm and beauty of outline results in great part from beauty of surface. Let the Indian mausoleum called the Taj Mahal at Beejapore, the solemn and expressive beauty of which it is said moves its visitors to tears, let it undergo this process, and would men and women approach it weeping? This is an extreme example, the tomb of Nour Jehan being among the most graceful structures that ever reared their domes into the welkin; but the principle applies to all works of art, and it can be no true work that does not lose what grace and dignity remains to it by such treatment.

The restorations, as far as they have gone, at Chester Cathedral have been as ably executed, I suppose, as such works can be; but I will venture to say that there was far more of the spirit of the original in the old tower of that cathedral, dilapidated as it was, before it was touched by the architect, than in the tower as restored, which has none of the grandeur it unmistakably possessed in its former state. As to the rest of the work, I mean in the body of the building, any one may see, upon contrasting the reproduced tracery and ornament with what remains of the old, the grace and delicacy of which is exquisite, that the new carving is a mere apology for what the original must have been in its prime. The entire cathedral, besides having all the want of interest of a new erection, will be a work of a lower class of art than it was before.

There is something calculated to shock an artistic and delicate imagination in the very idea of this mode of arresting the decay of a great building, which, though it may be a very proper one for dilapidated warehouses, barracks, magazines, or other engineering works, is abhorrent to the airy ethereal nature of architecture.

I have made in the foregoing remarks frequent mention of Chester Cathedral, not from any ill-will towards those concerned in its restoration, but simply because it is the cathedral with which I am best acquainted, from having resided for some years in

* By Samuel Huggins. Read before the Liverpool Architectural and Archaeological Society.

Chester; because it is the cathedral in which I have been most forcibly impressed with the surpassing interest and beauty of these structures; and because, being the cathedral of our own diocese, it is the one with which you also will naturally feel interested. For myself, I recollect when I was living in Chester there was nothing that gave me a respite from the low and depressing cares of ordinary and daily life, and calmed and soothed me, whilst it delighted and gave wings to my imagination, like a visit to the cathedral, more especially the unique chapter-house and beautiful cloisters. The cloisters, which I most frequently visited, virtually took me out of the present life; when I had left the fashionable resort of Eastgate-street, a few minutes' walk has conducted me in effect into the Middle Ages, which seem to linger beneath these magic arches—from the nineteenth into the thirteenth century; so eloquent of the past, so redolent of the hopes and fears, the joys and sorrows, of other days, is this cloister: a gem of the past world, glittering among the rubbish of the present one; and which, on my return into the gay and lovely city, seemed like something recollected in a dream. No novel of Scott or Fielding, or play of Shakespeare, I feel sure, could so have transported me out of my daily mood into a world of poetry and romance as a visit to this cloister, haunted by a thousand memories and reminiscences of the past, which meet you at every turn—spirits gladder and brighter, I ween, than the present age will bequeath to a future one. The whole place is alive, glowing, eloquent with story. But this is not all; its value is not limited by its historic associations. Beauty sleeps beneath these arches, and sunlight, when it wakes her up, looks lovelier than elsewhere. Here, more than anywhere I know of, has architecture been heightened by the weird sculpture and arabesques of Nature, in the shape of flowers and mosses. Architecture and Nature, like music and poetry, have here met and coalesced, and the whole breathes an atmosphere of fairyland. It contains an inexhaustible mine of material for the artist-painter in search for the beautiful and poetic, that only a host of agents—accident, repeated additions and alterations, changes of style, weather, vegetation, and centuries of time—could have created; and here and there presents subjects which, for effect of powerful and vivid light and shade, Rembrandt himself would have been delighted to paint. I consider the cloister of Chester Cathedral, whatever its architectural merit, has become by its association with Nature one of the most touchingly beautiful and poetic objects in England. Nature has with every delicate grace invested it, and not only has she marked it for her own, but she revels and rejoices in the possession of it. Nestling as it were into the bosom of the ever-blooming mother, it seems as much a production of Nature as of art—as much a growth from the earth as an erection of man upon it. "Clothed in part with a vegetable garb, it appears," to use the language of Wordsworth in reference to some kindred objects, "as if it were received into the bosom of the living principle of things as it exists and acts among the woods and fields," and belongs more to the green earth and the glorious sky than to the busy city.

We are told that this cloister is not to share the fate of the cathedral at present. It is greatly to be hoped that it never will, and that for this lovely and sequestered spot "the bitterness of death is past." It is to be hoped it will not be touched beyond the rebuilding of the entirely destroyed south side. There is even less excuse for molesting this part of the cathedral than any other, as, in the common sense of the word, it is of no use, and exists only for beauty, and can only be considered as an ornamental accessory to the Protestant cathedral.

The principle for which I am contending does not apply to the great masterpieces only of our art, but to the country parish churches, many of which, though possessing small pretensions to architectural merit, are yet, as they stand half-buried in foliage, most perfect

gems of beauty and grace, especially valuable to the landscape painter, to whom indeed they are among the most delightful objects on earth, and by whom their "restoration" everywhere going on must be felt as a calamity to be deeply deplored.

I am profoundly convinced that when, in the progress of taste and true feeling in relation to art, the public mind shall become attuned to the highest notes of architecture, and able to appreciate the touching beauty arising from the exquisite and poetic blendings of architecture and nature, that it will look with a mournful regret on this restoration, *alas* destruction, of these and the greater class of edifices of which they are the offspring—a class of works which, in the sublimest lands, would add fresh beauty and sublimity to the scenery; regret something akin to that with which those ancient Jews of the Captivity looked upon their second temple, remembering the superior glory of the first; and turn with disgust and loathing from these new and false faces of their old friends.

Let it not be supposed that for the evil I would expose in this paper I am blaming the architect alone, who is probably generally overruled in the matter, and without sufficient influence to resist the popular rage. The evil is due mainly to a dearth of taste and ignorance of art among the wealthy and educated classes, even amongst the most learned and refined. The class chiefly to blame, I believe, is the clergy, who, I regret to think, have otherwise greatly injured the study and thwarted the progress of architecture by their undue interference in the style and design of ecclesiastical edifices. I say undue interference, for nothing but the devotion of a lifetime, or at least of long years to the study—an amount of study which no clergyman can give to it consistent with what is due to his own great science—could qualify any man for dictatorship in architecture. I make this charge advisedly, from the observation and experience of many years, and without any irreverence for the sacred office of the priesthood.

I feel sure, however, that if architects had that high artistic feeling and degree of culture which becomes the architect, and had a due appreciation of those beautiful relics of the past, nobody could or would dare to touch them. It is, I believe, against the best interest of architects to have the exceeding beauty of these works destroyed—beauty which is continually increasing, as every year adds a scale to the shell-fish; for nothing would go farther to educate their own sense of beauty and that of their clients and the public, and at the same time show the latter the value of art and architecture, than those doubly-blessed objects, left uninjured in all their acquired and venerable beauty.*

Professor Donaldson and Mr. Edmund Sharpe have recently protested against a great abuse which has gradually sprung up among us, that of colour in the interior of churches. It is to be hoped that leaders of the profession will also raise a voice against the most mischievous, because more irremediable, abuse to which I here call attention.

In conclusion, it may be thought that my language in this paper is over strong. I believe it is not stronger than the occasion calls for; and I could not honestly or truthfully use milder. If I have spoken strongly it is because I have felt strongly, and because I am anxious that my words should take effect. I have felt the evil I complain of as a severe personal loss, and I cannot think that in this I stand alone, since those feelings which it offends in me are in a greater or lesser degree common to mankind. Let me indulge the hope that, however disagreeable my remarks may be to some individuals,

* It might be hinted to deans and chapters, and churchwardens, that English churches, great and small, are only placed in their hands in trust for the public, to whom they properly belong; and that while there is a portion of that public, however small, refined enough to appreciate them as works of art ennobled and spiritualised by Nature, they (the deans and chapters and churchwardens) have no right to despoil them as such, which they certainly do when they cut away all on which Nature has breathed, the old features or façades—the parts which alone appeal to the imagination, and wind themselves round the hearts of the susceptible.

the intention of personal offence to any one will not be imputed to me. No one who knows me will suppose that I have any personal interest to serve by them.

PRESENTATION TO A DISABLED OPERATIVE MASON.

[COMMUNICATED.]

ON Friday week last a meeting of operative masons was held at the Crown Inn, Darwen, for the purpose of presenting from the Accidental Fund of the Operative Masons' Society £100 to Mr. Timothy Hughes, who had met with an accident some nineteen months since while employed at the erection of a house and shop in Railway-road, Darwen.

The chairman stated that the object of the meeting was one of a kindred character to many others which had taken place in connection with their society, namely, to aid a disabled brother, who had been unfortunate through an accident. He had great pleasure in calling upon Mr. Harnote, the general secretary from the central office, Manchester, to make the presentation.

He (Mr. Harnote) had been at several similar gatherings, and was always pleased to find so many young men amongst them, who had the good sense and forethought to pay a small portion of their earnings to a fund which had for its object the best intentions of assisting them to seek a fair remuneration for their labour, to render assistance in time of sickness, and for the decent and respectable interment of the deceased members and their wives; also for enabling (as far as in their power) any brother who should meet with an accident, and thus be disabled from following his employment, to have such a sum given to him as will place him in a position as to earn a livelihood by other means, and as proof of this he would now present their brother, Mr. Hughes, with the sum of £100 in gold, trusting that he would be able to place the same in such investment or business as would tend to aid him through the remainder of his life, as he was disabled from following his trade as an operative mason. The following had been paid for accidents alone since the society was formed in Colne, in Lancashire, in 1834 (being about 37 years), £21,700; and the disbursements of the funds for 1870 are: paid to sick members, £2,960; to superannuated members, £1,394; to members unemployed, £3,535; to hospitals £218; paid over to members who have been disabled through accidents, £1,939; and to the friends of deceased members, £3,436; making a total paid during last year of £13,480 for benevolent purposes, besides rendering assistance to members out of work through strikes, to the amount of £3,177. The chairman then called upon the Secretary (Mr. Fagan) to read the following address:—

"The Operative Masons' Society.—Worthy brother, —We hereby express our heartfelt sympathy with you in this, the heaviest affliction which it has been your lot to undergo. It has pleased an all-wise Providence to permit you to be so afflicted (for nothing happens by chance) so that in one moment all your hopes for life were blighted, and your prospects cut off or confined in a very narrow compass, by a fall from a scaffold 15 feet high on joists which injured your wrist-joint and hip-bone. Dangers stand thick in our way to push us to the grave. The Operative Stonemasons' Society was formed 36 years ago to assist such unfortunate cases as yours, so that in the day of your adversity, when friends are incapable of relieving you to the extent desirable, you can look with joy to that friend in need, the masons' society, and you will feel thankful to God for so influencing your mind to pay your small pittance, which some think is little better than thrown away, but which has brought forth fiftyfold to the benefit of yourself and family. Accept of this purse of £100, Brother Hughes, not as a deed of charity, but as your own, having acted in conformity with the rules of the masons' society, which provides such benefits for its disabled members. Accept of this as our sympathy, love, friendship, and esteem for you, and we also pray that it may be the means, by judicious investment on your part, of bringing in a livelihood for you and yours, so that you may spend the remainder of your life in comfort and happiness.—Signed on behalf of the Darwen lodge, Patrick Flenny, President; John Entwistle, Treasurer: Thomas Fagan, Secretary."

Brother Hughes, in responding, observed: Worthy brothers,—I feel myself unable to express my feelings of gratitude on this occasion for the handsome gift of our institution in the time of my adversity. I sincerely hope that what the company have witnessed this evening will be an inducement to men in our trade to become members of the society, and to keep themselves clear on the book. In returning my most sincere and heartfelt thanks to the society and all the members present, I trust the body may continue to prosper. This is indeed the sincere wish of your afflicted brother.

BUILDING GHOULS.

HOUSE MANUFACTURE.

ARCHITECTURE both embodies an art and a science; and when it ceases to maintain its position, civilisation must suffer. What a lapse of ages the mind must travel back to when the first earth-house was excavated, or the first timber hut was constructed, for man's shelter and abode! Then, tracing the wondrous art, we come in contact with marvellous masonic efforts, in the cyclopædian walls and fortifications of the Eastern nations, the huge monolithic and pyramidal structures of Egypt, the symmetrical arched and columnar triumphs of the Romans, and, preceding them, but excelling them in grace and beauty, the majestic marble temples of Greece.

"Apostrophised in ruins scattered,
By lorn pool and lichened peak;
Old mighty marble shrines, shattered,
Rich in genius of the Greek."

Nor must we pass here by default the glory of Great Britain and Ireland, the unequalled achievements of her Christian and Gothic architects and craftsmen. Did our subject admit of it, we would fain lead our readers with solemn tread through the sainted aisles and vaulted galleries of our peerless cathedrals, and interpret to them the story of the past, and its lesson, on the rood-screen or in the canopied niche, in the marvellous boss, or the angelic corbel, from whose eyes still gleam the living ecstacy of the antique sculptor or his model. Our present task is not, however, with the architecture of the past, but the imposthume that attaches to it in the present day.

We build still edifices that may live for centuries, and will continue to extract admiration, even when the day that witnesses them in ruins arrives; but, unfortunately for England's greatness and their own beauty and worth, these buildings have but few companions. Competition and the contract system have nearly destroyed the true spirit of architecture. Our architects practise their art now for money instead of fame, with few noble exceptions, and our builders build for cash instead of character. The craftsman is a mere machine, who works "to order"; he is obliged to give an embodiment to the paper pattern, and is debarred from throwing into the woof one golden thread of his own creative fancy. Not so was it of old, when brain and hand worked in unison—when architect and craftsman, craftsman and architect, toiled lovingly and earnestly together in consummating those grand conceptions, which will live as models for all time.

Nearly two-thirds of the structures that are raised in Great Britain in the present day, and called "eligible" residences, are little better than gilded mortuaries, the homes of living death and chronic diseases; they are, in fact, the nurseries of our epidemics, the hospitals of our most virulent social disorders, and the temporary graves of our murdered population. These may be strong words to give utterance to, but they are necessary ones, and are at the same time justifiable, as we shall presently prove.

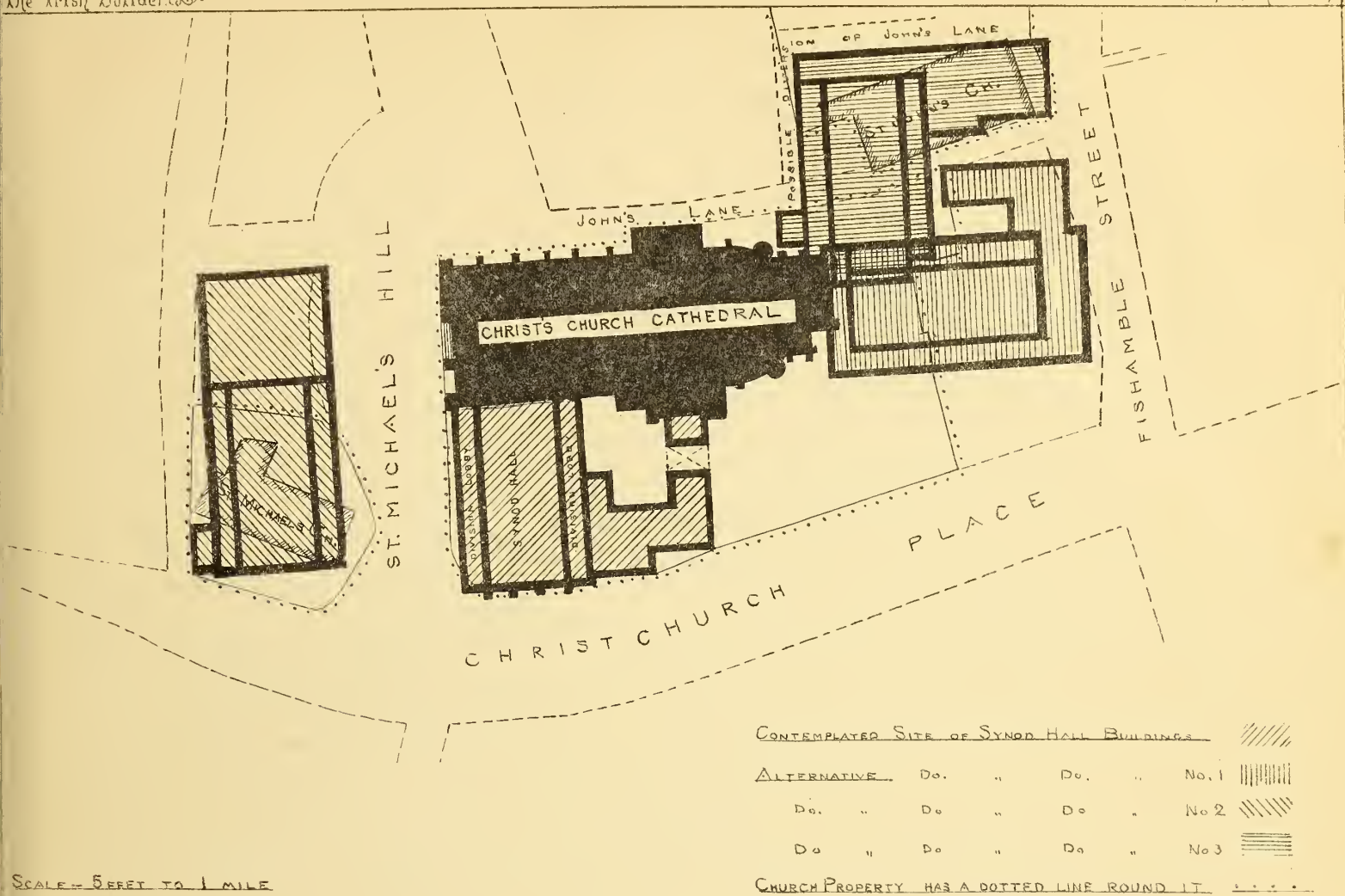
Building of late years in every chief city and town of importance has become a speculation with those who had some money to expend, and who did not care in what business it might be sunk so long as there existed fair hopes of speedy profits. The wants of the middle class and the working classes offered a fair game for these land and house sharks. Decent-looking houses of fashionable exterior at moderate rents, and containing a certain number of rooms, were long yearned

for by that large portion of the community who depend upon small incomes, and who desire to keep up appearances. The banking assistants and mercantile assistants, together with the respectable artizan class, also desired to be accommodated with a more commodious class of dwellings than what it was formerly in their power to obtain. Building Societies soon sprang into existence, and a second-class description of builders, who were previously of an isolated nature here and there, and few and far between, increased wonderfully in numbers, and ramified themselves in all quarters of the Kingdom. Then the Building Mania began and worked itself into a fever heat, recovered, and relapsed again, and eventually became what it now shows itself—a periodical and intermittent evil. Were an enumeration taken of the number of unoccupied houses, it would be found that there are several thousands more in London, Dublin, and Edinburgh at the present time than are required, even of new erections; and the majority of these new dwellings are built to sell by their owners, and not built as formerly to hold and to receive rents from. Their owners nor their builders would not for any consideration undertake the task at their own expense, of keeping them in repair. In five years these class of houses have cracked walls occasioned by settlements and bad foundations, sunken floors, wretched leaky roofs, dry-rot, and shrinkage in the woodwork, foul and noisome drains. In ten years, a general ruin and breakage everywhere presents itself; and, after this time, they generally cost their unfortunate tenants more to keep them in repair than they are worth. The repair and painting and papering of this class of houses becomes a settled annual custom that can never be postponed, if they are to be considered at all habitable, which they are not, nor ever have been. The great majority of the present day second-class, and even what is out of courtesy called first-class residences, are built by a tribe of builders known by the nickname of "Jerrys." These small contractors build for themselves when they have no contracts in hands for others. The dwelling-houses they erect on speculation are built to "sell," and the very worst materials and workmanship go to their formation. Badly burnt bricks, mortar in which good lime and sand exist in infinitesimal quantities; timber knotty, sappy, and, where not injured, is certain to be of less thickness than the purpose it is used for requires; the plaster of the ceiling and walls is pure road gutter thinly diluted with lime and deluged with water, and the final coating or external finish is gauged to the thickness of a man's nail—this thin outside shell is the only real bit of plaster that is used. Then come the papering and the painting. The painting, like the bricklaying and plastering, is *scamped*—mere slop work. One or two coats of paint now-a-days is made to answer the place of four. The oil and turpentine is spared, and distemper painting, composed of a mixture of size and other substances, is utilised wherever it can be done with profit by the speculator. Varnish is put on over a body of paint unfitted to receive it, and a few months' time is quite sufficient to show everything of a dull ashy colour that ought to continue bright. Inside doors, window trimmings and panellings well and properly painted with good materials will keep bright and clean under favourable conditions for years instead of months. House-painting now has become a "knack" instead of an art, and in a sanitary

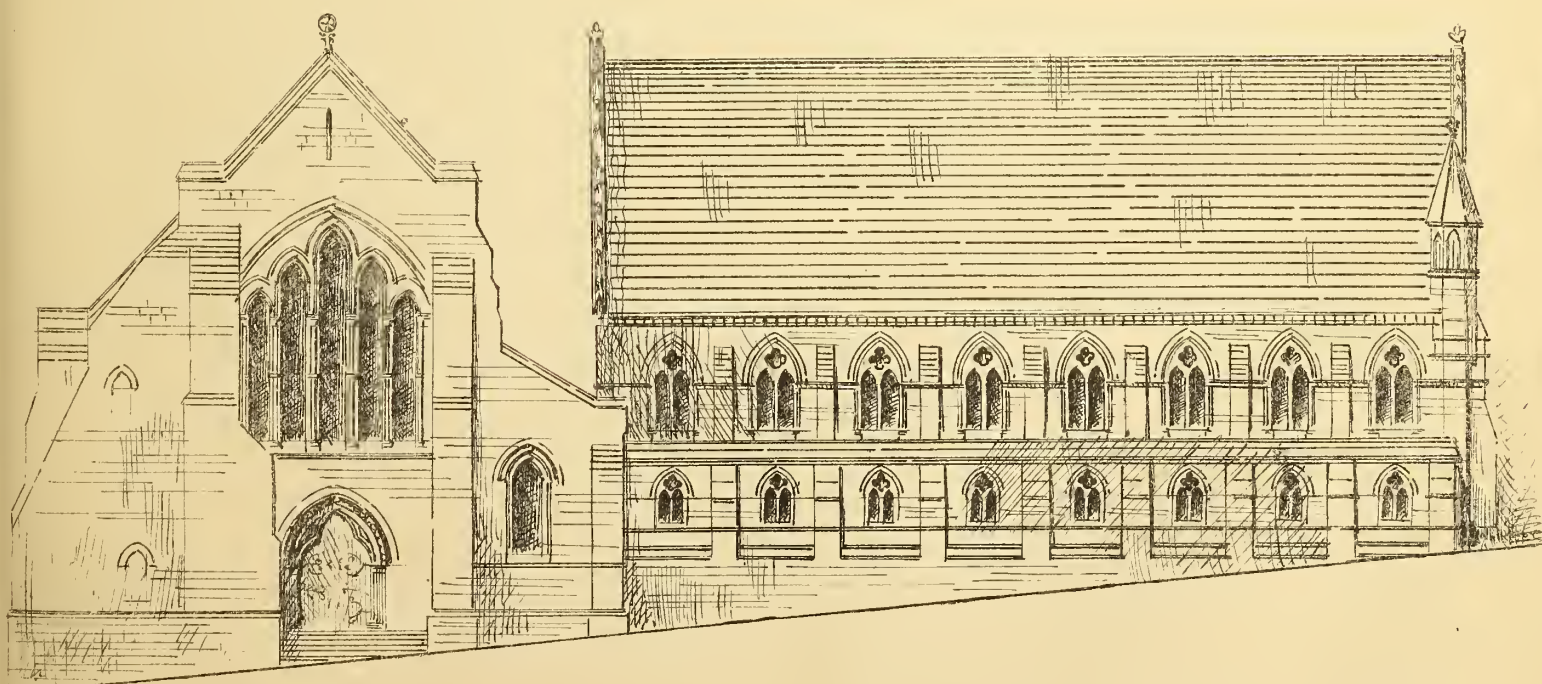
respect, as painting and paper-hanging work is at present executed, diseases are engendered. Cheap room-paper and expensive room-paper alike, as at present manufactured and used in our dwelling-houses, is a dangerous and fatal luxury. The composition of many of those bright colours that so take people's fancy at first sight, and which they desire to have on their drawing-room or breakfast-parlour, are simply deadly poison mixtures without any fixed properties. Poison-impregnated paper-hangings cover all our walls, sold at so much a yard, and of a verity they might be warranted to kill by the foot. The weak lungs of our infant children imbibe this slow poison that is always exhaling, they suck it by the drachm, and, as a consequence, a large proportion of them waste away, dying by inches.

Badly built, badly constructed, and badly furnished houses, such as we are describing, contribute in various ways to the infant and adult mortality in our towns and cities, not alone in the materials of their construction, but from reasons of their foundations and the utter neglect that attends their drainage and every matter connected with it. Only a "make-believe" drainage exists in many cases in connection with the majority of our modern dwellings. The water-closets are ever giving forth, particularly in the summer, foul gases, for want of the drain or sewer having a proper outfall, or through the plumbing work being badly executed. Many of our dwellings may be said to be built over cesspools; their foundations, a short while after erection, rest in a sewage-impregnated subsoil; dampness and dry-rot march hand in hand; the mortar and brick of the walls spew forth a deadly ooze, the timber work is coated with a mould, and the freaks of the *fungi* are carried on in gaunt and gravelike attitudes. The cellars of our dwellings are often the forcing ground of the strangest vegetable species, more like in their growths to the products of what would spring from some unearthly soil, than a soil common to our earth.

If we would inaugurate a new and healthy state of things in the building world, and lead to the creation of a better and more sanitary class of dwellings, the appointment of a Minister of Public Health, is an absolute necessity. The laws relating to the erection and the requirements of dwelling-houses are few, and most lax in their clauses. Corporate and local boards, are often found at present running counter to the general law, and promulgating certain laws of their own, which they tyrannically enforce in some cases, and make exceptions to in others. It would seem that if the building speculator complies with the rules laid down respecting the line of frontage and one or two others connected with the size of apartments, flues, drains, &c., he may drive a coach and six through the other requirements, which ought to be the obvious and necessary concomitants of the former. Height, width, and cubic space may be furnished in a new building, yet the structure may be nothing more after all than a pest. Bad workmanship and materials, and ill construction, coupled with gross and wanton neglect in the matter of foundations and drainage, will produce a house, or rather a gilded coffin, of many compartments, and each compartment a living grave. Men, women, and children will vegetate in such homes as these, but will not live. Melancholy will mark them for her own, and the curse of infracted sanitary laws will come



PLAN OF CHRIST'S CHURCH CATHEDRAL &c



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some day in the shape of a typhus, entailing an additional sorrow and inflicting perchance an additional burden on our public charities. Our architects are intelligent enough to know this, and so are many of our builders; but the Ishmaels and the land pirates of the building profession are not concerned about sanitary laws in the crowded city or town, while they can rent a country or marine residence for their own use.

House manufacture at this present moment exists in the different suburbs of London and Dublin to an alarming extent, and the surveillance of district surveyors is of the most lax description. Entire parks of houses are run up around London of a uniform sameness in design and build, the "Jerry" builder or his foreman being the only architect employed. The design in many instances is the mere copy of a copy of one existing elsewhere, or an altered copy from some book of designs. This practice is neither science nor art; it is plagiarism and theft; still it is strictly in keeping with the workmanship and the materials from roof-tree to footings. Such is the class of buildings that disgraces our architecture in the present day over the United Kingdom, and against which all honest men cannot too strongly protest. The architects of Greece and Rome would have studied in vain, Inigo Jones and Wren, or Gandon and Cooley, fruitlessly designed and toiled, if the state of things that now exist could be written down as the anti-climax of their dream. Happily, true disciples of the Greek, the Roman, and the Goth are amongst us, and we have not the least doubt that the locusts of architecture and the building art will be eventually stamped out. To effect this happy reform legislative measures are absolutely necessary, and the strong sympathy of the mass of the public. A cancer may be cut at once out of the human body, but this building cancer that we speak of is an evil of gigantic magnitude that can only be attacked and conquered in detail.

DUBLINIENSIS.

CORRESPONDENCE.

THE MULLINGAR COMPETITION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—*Quousque tandem abutere patientia nostra?*—which, freely translated, means How long are architects to be befooled by the public?—is a question which ought to suggest itself to the mind of any architect who has the slightest regard for himself or the honour of the profession to which he belongs. The latest competition scandal (as an English journalist would say) hails from Ireland, the land of fair play, where forty architects were induced to send in plans for an episcopal residence containing about thirty apartments, the cost of which was fixed at £2,500! Many architects, considering the whole affair a practical joke suitable to the month of April, laughed at it and burned the instructions. Would that your humble servant was amongst that far-seeing body; but, no, such was not to be his fate: he was destined to burn the midnight oil (gas I mean) and cover sundry sheets of "double elephant," at ninepence a sheet, with designs for an imposing building for "Royal Meath" with the required thirty apartments, be the same more or less, which, on the most economical calculation, would cost £5,000. Sir, the result was a printed circular which kindly intimates that my plans will, "if required," be returned carriage free. I replied instantly, requesting that my plans should be forwarded, but they have not yet turned up. Would that Mr. Gladstone, in considering the erection of Lunatic Asylums, could be induced to build

an architects' wing to such useful institutions; if so, I promise the "Building Committees" would soon fill them.

FIAT JUSTITIA, RUAT CÆLUM
ON THE HEADS OF THE COMMITTEE.

I enclose my card, but not for publication.

EPISCOPAL RESIDENCE,
MULLINGAR.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having sent in plans for the above (in compliance with an advertisement which appeared in your influential journal), after the lapse of a fortnight or three weeks I received the enclosed circular, which I send for publication.* I see that Irish architects are not the only victims, as a letter appears in a cotemporary from an English architect complaining of the manner in which the competitors have been treated, and demanding, in common justice, that the second premium (£20) should be given to the author of the best design sent in, in order that the competitors should have the melancholy consolation that the time of one of their number did not absolutely go for nothing. This is a good suggestion worthy of the consideration of the committee.

COMPETITOR.

* "SIR,—The Episcopal Residence Building Committee, Mullingar, feel compelled, most reluctantly, to reject all the plans sent in. One class having the requirements being far too expensive, and much above the sum mentioned in the advertisement; the other, for not having the necessary accommodation, and consequently not acceptable. The plans will be returned, with many thanks, carriage paid, if required. By order, THOMAS O'REILLY, secretary. May 16, 1871."

BRICK, AND LIME, AND CEMENT
MANUFACTURE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I have read with much pleasure the letter in your last number from "Dubliniensis," on the subject of brick clay and other products of manufacture in the neighbourhood of Dublin, and I am in a position to bear out, from personal experience, the correctness of several of the remarks made by that gentleman. It is known beyond all question, that bricks have been heretofore made from clay not a mile distant from the Castle of Dublin, and abundance of suitable material still exists on the same spot. At Merrion and Clontarf, and other places round the coast, bricks have been also made. There is some magnificent pottery clay in the neighbourhood of Templeogue, and almost all kinds of clay—fire, pottery, pipe, and other, as well as excellent materials for cement—are to be found at Sutton. In and about Dublin there is, in fact, plenty of brick material; and I have lately seen red bricks made within the last couple of months in England from clay sent from Rathgar, which are certainly equal in colour and finish, and superior in point of material to anything imported from the other side of the channel. Moreover, all practical men are aware that the Belfast red bricks have stood the test of time in Dublin where the Bridgewater have in some cases failed; and it is certainly a reproach that, whereas Bridgewater bricks are unknown in Belfast, and have been driven out of Cork by the energy of a woman making a superior article there, the people of Dublin, with plenty of capital and abundance of material at hand, are content to continue importing bricks from Bridgewater, and from Belfast also when they can get them. I know, as a matter of fact, that a short time ago—say twelve or eighteen months—a cargo of bricks selling at the works at 24s. were brought from the north of Ireland into Dublin—and that too not for facing purposes,—and were actually afterwards sent away by rail and boat fifty miles into the country, the total expense of carriage being nearly one and a-half times the original cost of the bricks, or the whole cost being about three times the price at which suitable bricks could have been made at the place where they were wanted.

One of the great objections to brickmaking in the neighbourhood of Dublin is the nuisance created by the ordinary method of burning; but the Hoffmann invention completely removes this difficulty, as a Hoffmann kiln can be put up in the very heart of any city without causing the slightest inconvenience, besides which these kilns save 75 per cent. in the cost of fuel. In Mr. Moore's Hoffmann kiln in Belfast the cost of burning his excellent bricks, which are well known in Dublin, is under 1s. per thousand; and in another of these kilns in Ireland lime is actually burned, and of course most perfectly, for less than 10d. for each ton of lime turned out.

The Hoffmann kilns are also suitable for cement: they are, I understand, spreading over all parts of the world, and appear to be peculiarly adapted to such countries as Ireland, where the comparatively high cost for fuel has been always deemed a serious drawback to manufacturing progress. The greatest brickmaker in the world, Herr Heinrich Drasche, of Vienna, thus wrote to Mr. Hoffmann, in March, 1867, about them:—

"With the kilns now building, I shall have this season nineteen large-sized ring-ovens with twenty-sets of fires in operation (equal to twenty-six kilns), and I daresay I shall then be the proprietor of the largest number of continuous working kilns). The Russian Colonel M. Spiegel called several times on me and visited repeatedly my various brick-fields for his instruction. I gave this gentleman all desirable information on your behalf, and recommended him your patent kilns strongly, as they deserve it. Colonel Spiegel has decided to erect a kiln similar to mine, and will order the plans directly on his return to Warsaw. . . . As soon as I have these large-sized kilns in operation, I intend next year to build a few smaller ones, which may serve as models for communes and towns in the provinces.

(Signed) HEINRICH DRASCHE."

To those unacquainted with the name of Mr. H. Drasche, the following short account of his works published in a report on the Great Exhibition, 1851, will give some idea of their magnitude:—

BRICK-MAKING IN AUSTRIA.

One of the most remarkable brick manufactories in any country, is that in the Austrian dominions—or rather there are several belonging to the same person. He sent over an assortment of bricks, roofing-tiles, draining tiles, and hollow bricks made by machinery, to the Great Exhibition, and the following account was given of his manufacturing enterprises. He has seven establishments of various parts of Austria and Hungary, giving direct employment to 4,880 persons. His brick manufactory at Inzersdorf, on the Winen Berg, is supposed to be the largest in the world. It covers an area of 265 English acres; while 680 acres of clay land have also been purchased, in order to secure excellent materials for a long period. There are drying sheds 24,930 feet in aggregate length for ordinary bricks; moulding sheds, 8,304 feet long, for tiles and ornamental bricks; 446 moulding benches, 43 kilns capable of burning 3,510,000 bricks at one time, 5 Artesian wells, washing and kneading pits, blacksmiths' and carpenters' shops and tool shops. There are employed 2,890 persons and 300 horses. The establishment also comprises schools for the children, dwellings for the workmen, an hospital, and public kitchen.

It will be seen from this, that if Prussia has the greatest steel factory in the world, Austria has the greatest brick manufactory.

RUHTRA.

[We are aware of the correctness of the facts stated above, and can give every information on the subject of the Hoffmann kiln to any of our readers.—ED.]

DUBLIN MAIN DRAINAGE BILL.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As the Corporation meet on Thursday or Friday to discuss this bill, "as amended," it may be desirable to place before the independent members of that body, as briefly as possible, some of the many points on which information from the promoters of the bill is much to be desired.

1. Is it true, as stated by a member of the Rathmines Board, at the Rotundo meeting of March 24, and reported in the *Freeman* and other journals, that the Rathmines and Pembroke Commissioners offered the Corpo-

ration 6d. in the pound as their contribution, and were refused; and if that be so, on what principle of right or justice is 4d. now fixed and accepted?

2. Is it not the fact that the Main Sewer No. 1, which is to cost £200,000, was not thought of till Mr. Bazalgette conceived the idea of intercepting the Dodder sewage, and thus bringing Rathmines and Pembroke into the city drainage district, and that while Mr. Neville estimated for the city proper, and for the Liffey only, his estimates were moderate indeed—£30,000 in 1853, and £70,000 in 1865?

3. This main sewer No. 1—7½ miles in length—has for the greater part of that distance the gradient of but two feet to the mile. This is the London gradient, producing what may eminent medical authorities describe as "elongated cesspools," more dangerous to the public health than even the filthy Thames. On this point it is important to notice that the London mortality, which in 1857 and 1858 had a mean rate of 22·25, was in 1867 and 1868 (the death-rate over all England being in 1857 and 1868 22·7, in 1867 and 1868, 22·1) increased to 23·30, or more than one per cent. But at one spot in the midst of our city—in College-green—the gradient of this proposed main sewer falls to 1 in 3490—yet, worse than the London gradient. A remarkable circumstance occurred respecting this gradient in the examination of Mr. Bazalgette. That gentlemen first attempted to pass over that particular spot in his description of the line and gradients; recalled to it, and asked to name the gradient; he did so with the allegation that this was "a lithographer's mistake!" I have been since informed by an eminent engineer that the lithographer has not made any mistake, and that 1 in 3490 is the correct gradient. Should not the members of the Corporation see to this matter?

4. No solid sewage being allowed to be discharged, and the Sewage Utilisation Company proving a myth, what is to be done with the sewage when brought to the North Bull? Under the "Amended Bill" it cannot be deposited there without leave of the owner. Has that leave been obtained? Sir Arthur Guinness has yet to be settled with for injury to his residence; what are to be the terms of that settlement? what the amount of compensation? Let the Corporation remember that sewage works of precisely similar character at Birmingham have been restrained by injunction but two months ago on account of the injury to the health of the residents in the locality.

5. The "Amended Bill" fixes the city rate at 8d. in the pound, which is not to be exceeded "on the mere motion" of the Corporation. What is the true meaning of these words in a rating clause? Are they not to be read in connection with the Liffey Act of 1870, under which the Government reserves the power to obtain by *mandamus* the levy of a sufficient rate; 8d. is insufficient, and known to be insufficient to the framers of the "Amended Bill."

6. At the recent enquiry, everyone conversant with the financial affairs of the Corporation was kept from the witness chair. I now ask, is it not the fact that if the Corporation is to discharge its waterworks obligations it must seek powers to increase the water-rate beyond its present limit of 15d.? Will satisfactory investigation into this matter be permitted?

I cannot conclude without warning the public that no real investigation into the Main Drainage scheme took place before the Select Committee on the bill. Every confidence may be placed in the honour and integrity of the select committees of Parliament, but they must have all the facts and all the arguments on one side as well as on the other before they can really investigate and decide upon the merits of the case. Let, in any court of law, one of the litigants have practically unlimited funds at his disposal, while his opponent has to depend upon voluntary subscriptions, and, yet further, let the former, if even in the wrong, be sure of

his costs, while the latter, if even in the right, be sure not to get them, and you have the state of things before a select committee inquiring into a bill promoted by a municipal body, and opposed by a section of the rate-payers. Why, in this case, under these circumstances, any appearance was made I may hereafter state, when free to do so.

Dublin, May 30, 1871. J. M'Evoy.

OUR LABOURERS AND THEIR GRIEVANCES.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I have for a long time contemplated giving vent to my thoughts upon the all-engrossing subject of the present condition of Ireland, its attempted pacification by the present government, the difficulty of dealing with agrarian crime, the cause of the latter, and the wants of the working classes in general, and, like your contributor "Dublinensis," ask through what journal in Ireland can I better do so than through the IRISH BUILDER?

The disturbances which have been the cause of so much anxiety and trouble to the legislature for the past few years, I attribute solely to a desire for reform on the part of the labouring population, whose intelligence has stolen upon us unawares; and now that their just demands have become pressing, we, because we are interrupted in our pleasures, peevishly attribute them to erroneous doctrines and disloyal principles inculcated by foreign emissaries and native designing demagogues, when it is nothing more than the effects of the natural progress of civilisation. The common mechanic or small-farm occupier of our day may not be a very good reasoner—he may not understand the science of governing to that degree which would teach him to shun the preaching of dissatisfied persons who seek to lead him astray only to use him; yet, in the main, he knows a vast deal more than the working man of fifty years ago, and, consequently, makes a louder noise; while we, on the other hand, who are as conservative as we were then, look for the same submission in the working man of to-day, and make just as loud a complaint when we find it not. This, too, in the face of the fact that vigorous efforts have been made, through the Press and otherwise, to instil into the minds of the masses the same notions of liberty as we entertain ourselves. Can it be wondered at, therefore, that great exertions should be made on the part of the lowly to better their circumstances in life, or can it be expected that they should look upon poverty, want, and ill-rewarded labour as compatible with the progress of the present age, and in keeping with the principles of that freedom which is so zealously guarded by us, and explained in a manner that teaches the man who can read and digest to aspire to a more elevated position? Ought not some allowance be made for their imperfect education, and when they try to explain themselves, if their conclusions are not sound, why not lead them into the proper groove by explaining away what is not wise, and, like the lawyer serving his client, make known what it is they do want from the substance of their remarks? In their excitement for redress of grievances, which have often been admitted to be just, they seek for too much, at which we grow indignant, and will in consequence concede nothing—absolutely nothing,—and still look for submission and respect, and grow despotic and tyrannical when their opposition becomes clamorous;—in short, we want our dependants to be better philosophers than we could be ourselves, if, with our superior knowledge, we happened to occupy their position. If the misdirected mechanic, possessed of a reasonable amount of general knowledge, the small shopkeepers, and their sons who serve in our commercial houses, find their wants touched upon at all by the knaves who take advantage of their intelligence to raise impracticable and extravagant expectations, they think the mere mention of them better than the cold neglect which they receive from those who ought to be really the teachers and guardians of the people.

Why should we wonder at professional agitators being followed and applauded when we never attempt to gain the ear of the multitude? Is it not painful to find the majority of the nobility and gentry in the land, in their ignorance of the true state of affairs, support measures for repressing what they look upon as criminal, presumptuous, and unjust, but which, when properly understood, will be found to have sprung from the results of advancing knowledge, and the decrease of servility and superstition? For my own part, I have been forced to study the matter from a state of things which has heretofore existed upon my own estate, and which at present is a disgrace to many of my neighbours.

I was first incited to make enquiries, through an occurrence which took place on my return to Ireland after an absence of a number of years. The day of my arrival amongst them, my tenantry, and those depending upon the employment which they received upon my property for their living, assembled on the lawn in front of my house to give me a welcoming cheer. On this occasion I was forcibly struck with their general ragged, dirty, and miserable condition. Although somewhat flattered by this mark of respect, I could not help wishing that it had been paid by more respectable-looking individuals than those whom I saw before me. The wish was immediately followed by the mental enquiry why they were not more respectable, and an answer directly presented itself to the effect, which was obvious enough and which I subsequently found to be quite correct, that they had not the means to appear so. Further enquiries brought to my knowledge a state of things which I was mortified to have to confess being ignorant of before, and to find had ever existed, and which, in my opinion, went far to justify discontent and disloyalty to a sovereign whose ministers, to all appearances, favoured the interests of the landlords, whom the indifferently read are taught by a portion of the Irish Press to look upon as tyrants and monopolists. I immediately set about making a change in order to better the condition of those depending on me, and I have the satisfaction to be able to record a complete success. The manner in which I went about it, and the results of my undertaking, I shall perhaps make the subject of another communication. At present I will only remark that those who have since made a respectable and comfortable appearance to thank me for the change in their circumstances, are very well content with the present laws of the land, and are in no way disposed to seek for a radical alteration in them. The pacification and future well-being of the country, in my opinion, lies more with the employers of labour, both agricultural and manufacturing, than with the Government. If, as your talented contributor has justly remarked, the Irish architects set the example of recommending native materials to their clients, much would be gained in the way of developing the building resources of the country, which he has so ably pointed out are to be found in abundance at home. It is certainly a great pity that this important matter is not properly looked after by those who have it in their power to make it a success. It is also the greatest of pities that Ireland's most talented sons are obliged to travel to distant lands, in order to meet with that reward which their abilities deserve. This is to be the more deplored, because it is mostly the effect of the neglect of her landed proprietary whose example is followed by her merchant and manufacturing population to the great detriment of their own interests and good fame, and to the well-being of those depending upon them for the means to earn a livelihood. An instance of this neglect, which seems to be fashionable with a great many of the nobility and gentry of Ireland—a neglect which is as unmanly as it is unbecoming in them, and which drives the honest mechanic and the talented artist to foreign countries to enrich them by their industry, and make them famous by their genius,—may not be out of place in your columns. A neighbour of mine who had his

building work done by a London firm, had visitors upon one occasion during the progress of the work, to whom he exhibited the new improvements. On coming to a magnificent piece of carving, of which the lady of the house was very proud, she, for the information of her friends, enquired of the foreman, who was present, what was the name of the *Italian* who executed the work. "Why, your ladyship, replied the blunt Englishman, "he happens to be no Italian as I knows on, but an Irishman who was born upon your ladyship's estate." Thus it is with the generality of Irish landowners, merchants, &c. They must have their workmen imported as well as the materials, not knowing that the most difficult part of the work is often executed by their own countrymen, who have to seek out English employers, who alone, it seems, know how to value and reward their services.

AN IRISH PEER.

ON THE SELECTION AND USE OF STONE FOR ENGINEERING AND ARCHITECTURAL PURPOSES.*

THE use of stone dates back to the earliest of times, at first for sling stones, arrow and spear heads, and in the catapult. It is not as a weapon of offence, however, that I propose to treat on it to-night, but principally as a weapon of defence against the two elements, air and water, in the construction of breakwaters, docks, and public and private buildings. For these purposes it was the first material used, and although various artificial materials, such as brick, terra-cotta, cement, concrete, &c., have been invented, and used with varying success, still it holds its own against them all; neither can we be surprised when we consider its great natural advantages. It is easy to hand, no making, baking, burning, or mixing, to be done, and widely spread in large and small quantities of all qualities all over the world. In the construction of breakwaters, piers, and arches of bridges, river walls, lintels over wide spaces, or for heavy cornices—indeed, wherever strength and weight are required, or heavy blows or weights have to be resisted, it is unequalled. It can be had of any size or shape and of any quality, from the great block of rough hard granite, tons in weight, used in sea defences, down to the fine even grain of the oolites, some of which are capable of being carved almost as elaborately as wood. Some have argued that stone is not so durable as brick or terra-cotta, or indeed cement. I have no desire to dispute the powers of lasting of these materials when good; but surely our own cathedrals and castles, to say nothing of the Pyramids of Egypt, supposed to have been built 1,600 years B.C., are sufficient proof to show that where reasonable care is exercised in its selection, it is good for "all time." In all materials there are various qualities, and and it is no argument to take the best example of say cement work, and compare it against the worst of stone, and then contend that cement dressings are as good as stone. Where clay is plentiful, brickwork is generally cheaper than stonework; but if much labour is required, as in axed arches or moulded and rubbed brickwork, stone can be used generally quite as cheaply.

If we take terra-cotta, there is no economy in its use, unless you make a great number of articles of the same pattern; even then, the burning twists and warps it so, that if of any size it is very difficult to get the work true; whereas stone can generally be had hard or soft, of various colours, and of any size. Some short time ago a gentleman, writing on stone, endeavoured to prove that stone used out of the district where it was quarried did not stand so well as in the neighbourhood, because the foreign climate did not agree with it. Nothing can be more absurd or illogical. Why should a piece of granite from Guernsey decay faster if used at Aberdeen, instead of at St. Peter's Port? How such an idea could ever have been

seriously promulgated, all reasoning persons must be at a loss to understand.

Stone having so many advantages, and being so much used, it is surprising that it has not been made a branch of study in the education of the engineer and architect. The remarks of the late Sir H. de la Beche on this point, although written upwards of thirty years ago, are still applicable to the present time. He says, "There was much excuse for the accidental durability of the stones employed in public or large private edifices in the former days when the mineralogical structure of building materials was so little understood, and the architect of those times could not always have churches or castles before them, from which they might judge of the relative durability of any stone they were about to employ, the quarries opened by them being also the first worked, to any considerable extent."

The architects and engineers of the present day cannot, however, avail themselves of these excuses, for the necessary chemical and mineralogical knowledge is readily acquired, and the number of public and private edifices of various dates scattered over the country is so great that the relative durability of the materials employed in their construction can easily be seen. It is, nevertheless, well known that with some few exceptions the mineralogical character of the stone employed in public works and buildings has hitherto received little attention from either architects or civil engineers in this country, more especially from the former, whose value of a material seems commonly to have been guided by the opinion of the mason. Now the mason seems almost always guided in his opinion by the freedom with which a stone works—no doubt an important element in the cost of a building, but certainly one which should not be permitted to weigh heavier in the scale than durability; and hence many a fine public or large private building is doomed to decay even in some cases within a few years. It is a common practice for young men who are intended to be brought up to be civil engineers to serve for some time in the works of a mechanical engineer, with a view to learn the uses and properties of metals. So with those intended for the architectural profession; they are taught first to be carpenters or joiners, to learn the uses and properties of timber. Why should not a young man who is desirous of entering either profession also learn some knowledge of quarrying and masonry by practical experience in the quarry and at the banker? Surely stone is as important a material as either iron or wood in the construction of engineering and architectural works? Perhaps no more practical engineer ever lived than Thomas Telford, and he began life as a stonemason in Scotland. The importance of a proper knowledge of the selection and use of stone to engineers and architects can hardly be over-rated. Indeed, some idea of its commercial importance may be gained by a knowledge of the fact that the value of the stone raised every year in the United Kingdom is said to be nearly if not quite £5,000,000. I shall, therefore, without further comment, commence the first part of my paper—namely,

THE SELECTION OF STONE.

Geologists tell us that the great divisions of rocks are classed according to the fossils that are found in them, and by the term fossil must be understood to mean any body, whether animal or vegetable, buried in the earth by natural causes. Rocks known by this test are termed generally aqueous, sedimentary, or fossiliferous, supposed to have been formed by the action of water on the earth's surface; these are stratified or divided into layers. From these rocks are raised most of the principal building stones, certainly those easiest to work. Other rocks are classed as volcanic: these are, for the most part, unstratified and devoid of fossils; they are supposed to have been forced up through the various over-lying strata, and flown into and over the same by the action of fire. They are known generally by their columnar and

globular structure. These produce not only building stone, but stones which are used for ornamental purposes more than any other kind of rock. Further, we have Plutonic rocks, highly crystalline, and destitute of organic remains. They are supposed to be all of igneous origin, but to have been formed under great pressure; they have been melted, but cooled and crystallised very slowly. They differ from the volcanic by their more crystalline texture, and by the absence of pores and cellular cavities. From these rocks we have some of the finest, hardest, and most durable of building stone. Lastly, we come to the metamorphic or stratified crystalline rocks. The origin of these is more doubtful than any of the other three classes; they contain no pebbles, sand, or angular pieces of stone or traces of organic bodies, often as crystalline as granite, yet divided into beds. They are supposed to have been deposited from water, but afterwards altered by subterranean heat so as to assume a new texture. Building stone is not raised so largely from these rocks as from the others. Many of the white marbles are, however, metamorphic. Nearly all the various systems embraced under the name of aqueous rocks produce sandstones and limestones of various kinds. It is important to remember this, as very frequently a stone is called oolitic or carboniferous from the system to which it belongs, when, perhaps, to the eye, it might not exhibit the more particular characteristics of the formation. In a paper read by our President in March, 1862, he treated of all the various building stones in each geological formation. I propose, therefore, to make my remarks more on the practice than the theory of the selection and use of stone.

In selecting a quarry from which to get the stone best suited to the purpose for which you want it great care is required. Having first satisfied yourself that stone of the size required can be obtained, and at a reasonable price, the next and most important step of all is to find out if it is a durable stone. Too much weight must not be placed on the assurance of the quarrymen that the particular bed which is the cheapest for them to get is the "best," and, by that word, I mean the most durable, not, as it is often understood amongst quarrymen and masons, the prettiest-looking stone and the easiest to work. Again, it does not follow that because certain old buildings, small or great, in the neighbourhood have lasted well, therefore all the quarries in the neighbourhood produce the same stone. In some cases the best beds have been worked out because the strata only crop out at one place, and for the same reason a quarry on one side of a hill very often produces much better stone than on the other. Specimens of stone dressed up square, sent out by the quarryman or agent, known as hand specimens, are very dangerous things to form an opinion on, because what looks very well in small pieces is really often of an inferior quality, and a stone that would appear coarse and rough in a specimen would not do so when in the mass. Stones that rub up to a smooth face are often not so durable as those of a rougher texture. To give an example, "best bed" Portland is much superior in colour and texture to "brown bed" Portland, but far inferior to it in durability. Examine all the different beds in a quarry, noting the particular grain, texture, and colour of each bed, compare them with the buildings around, and if there be any old quarries near with the face exposed, see which of the beds stand out the most and show the old tool-marks, and, consequently, have yielded to the action of the weather least. It frequently happens that the best stone in quarries is neglected, or only in part worked from the cost of baring and removing those beds with which it may be associated, and, in consequence, the inferior material is in such cases quarried, especially when a large supply is required in a short space of time, and at an insufficient price, which is often the case with respect to works undertaken by contract. As an economical supply

* Read by Mr. A. C. Paine, C.E., at Civil and Mechanical Engineers' Society.

of stone in particular localities would sometimes appear to depend on accidental circumstances, such as the cost of quarrying, the degree of facility in transport, and the prejudice that generally exists in favour of a material which has been long in use; and as the means of transport have of late years been greatly increased, it becomes essential to ascertain whether better materials than those which have been employed in any given place may not be obtained from other, although distant localities, upon equally advantageous terms.

The relative facility with which good materials may be obtained in a district is, to a certain extent, marked by the appearance of the towns and villages in it, the comparative cost of obtaining them being in general better shown by the character of the ordinary houses than by that of the public buildings and large mansions, the stone for which may sometimes have been brought from comparatively considerable distances. From the frequent practice, however, of selecting those stones which yield readily to the tool, and are hence commonly termed freestones, whatever may be their mineralogical characters, the most durable, and therefore eventually the cheapest, are far from being always employed. And it sometimes happens that we find the common cottages built of durable materials, while larger mansions and public buildings are not, the materials for the latter having been selected because they were soon readily worked up for ornamental parts, while those of the former may have been thrown aside in the same quarries because they yielded less freely to the tool.

In passing through the chief towns of Great Britain it will be easily seen that if more attention were paid to the mineralogical character of the stone employed in the construction of buildings, that frequently decay or decomposition, even in those erected within a few years, which we so often observe, would be avoided at comparatively small cost, and we should find fewer of our public edifices losing all traces of the finer work of the original structure. In estimating the relative durability of any given stone which may appear to resist decomposition from atmospheric influences in the country, no doubt due allowance should be made for the power of lichens to protect the external surface. These are not usually found in large towns, particularly those in which there is much coal smoke. We should not expect a sandstone, formed of quartz grains, loosely cemented by calcareous or argillaceous matter, to last so long when exposed to the weather as one in which quartz grains were firmly bound together by a compact argillaceous or siliceous substance. According to the texture and variable composition of the different calcareous and calciferous rocks, a judgment may be formed of their relative durability, and granites in which decomposition has already commenced in the felspar cannot be expected to remain firm under atmospheric influences.

The unequal state of preservation of many buildings, often produced by the varied quality of the stone employed in them, although it may have been taken from the same quarry, shows the propriety of a minute examination of the quarries themselves, in order to acquire a proper knowledge of the particular beds from whence the different varieties have been obtained. An inspection of quarries is also desirable for the purpose of ascertaining their power of supply, the probable extent of any given bed, and many other matters of practical importance.

An excellent and ready test when in the quarry is to chip a number of small pieces off each bed or block, and carefully examine them under a small but powerful magnifying glass. If the fracture is clean and sharp, and the grains are well cemented together, then it may be considered a durable stone; but, on the other hand, if the fracture has a powdery appearance, and the grains are ill-cemented, then the stone is very likely to decay. Another test of a good stone, not alone applicable to lime-stones, is to soak a number of small pieces in diluted sulphuric

acid for some days; its resistance to disintegration under this test shows its suitability or otherwise for building purposes in a large town, as well as where exposed to the salt rains and winds in situations near the sea.

(To be continued.)

THE VENDÔME COLUMN.

THE beautiful column of the Place Vendôme must not be allowed to fall without an obituary notice. The column was the idea of Napoleon. On the 18th of August the first stone was laid; the work was finished in exactly four years. The column is, or was, of the Doric order, and was of stone, coated with 425 bronze plaques, moulded in bas-reliefs, and winding round the shaft from the pedestal to the lantern. These formed a complete history of the campaign of 1805. The bronze weighed 1,800,000 pounds, and was the metal of 1,200 cannon captured at Ulm and Vienna. The total height of the column was 132 ft. 3 in., and it was ascended by a spiral staircase of 176 steps. The pedestal was also covered on three sides with bas-reliefs representing arms, uniforms, flags, and other military gear taken from the Austrians. The inscription was by Visconti, and ran as follows:—

“NEAPOLIO . IMP . AUG .

MONUMENTUM . BELLI . GERMANICI .

ANNO . MDCCCV .

TRIMESTRI . SPATIO . DUCTU . SUO . PROFLIGATI .

EX . ERRE . CAPTO .

GLORIE . EXERCITUS . MAXIMI . DICAVIT .”

The bas-reliefs were 3 ft. 8 in. high, and circled the column twenty-two times, making a spiral 840 ft. long. They were a series of tableaux, seventy-six in number, having for their subjects the principal incidents of the Austerlitz campaign. These were selected by the Emperor himself, and the inscriptions which accompanied them, and were engraved on a cordon under the bas-relief, were written by “*le savant Denon*” and the Prince of Wagram. The column was intended to give a pictorial and verbal history of the whole campaign.

Napoleon's first intention was that the statue upon the lantern of the column should be, not his own, but Charlemagne's. After Jena, Eylau, and Friedland, however, he changed his mind, or allowed his flatterers to change it for him, and a statue of himself by Chaudet was placed upon the column. This gave way, in 1844, to another by Seurre, in which the great Emperor was represented standing on a heap of cannon balls, dressed in his “*costume de bataille*.” The hat, the epaulettes, the boots, the “*redingote a revers*,” the lorgnette, and the sword worn at Austerlitz were copied exactly. The statue was cast in gun metal taken from the enemy, “under the Empire, let it be well understood,” adds the writer of this year, “for if we make war now-a-days we do not take cannon.” The present figure succeeded M. Seurre's, and is one of Napoleon III.'s tributes to the memory of his uncle.—*Broad Arrow*.

TREATMENT OF TOWN SEWAGE.

Mr. Arthur Jacob, B.A., read a paper on the above subject on the 16th ult., before the Institution of Civil Engineers, London, of which the following is an abstract:—

The treatment of sewage was divided into three heads: chemical, mechanical, and agricultural. The chemical processes alluded to were: the lime, the A B C or Sillars', the Northampton, and the invention lately introduced by Doctor David Forbes and Dr. A. P. Price. These, with the exception of the last-named method, had all failed to purify the effluent water from the works sufficiently to render it admissible into the natural streams of the country, and were all more or less attended with nuisance in their operation. The process of Dr. Forbes and Dr. Price aimed at purifying sewage by the addition of mineral phosphate of alumina, which was found to exist in large quantities in some of the smaller West India Islands. The phosphate was calcined, treated with crude

sulphuric or hydrochloric acid, and added in solution to the sewage. Milk of lime was next added, which disengaged the acid in the phosphate solution, and the deposit subsided. This system possessed the recommendation of producing a valuable manure, as contradistinguished from the A B C and other processes, in which the materials used had little, if any, agricultural value. So far, experiments had shown that the effluent water resulting from the application of the phosphate process did not display much tendency to putrefactive change; but the inventors did not claim that the nitrogenous matters held in solution were removed to any great extent, and suggested the employment of their method principally as an adjunct to irrigation, which was admitted to be the “most natural and effective system of utilizing sewage.”

In the greater number of instances, the artificial modes of treating sewage had for their object the production of a solid manure; whereas what was necessarily desired by corporate authorities was the abatement of a nuisance, by depriving liquid sewage of its noxious constituents, and any system that did not accomplish this first essential was practically ineffectual. It was shown that chemistry and filtration either singly or combined, had failed to accomplish the desired end, without almost total waste of the most valuable part of the sewage. In every case the greater part of the putrescible matter remained in solution, in a state more or less liable to decomposition. The efficacy of intermittent downward filtration, as recommended by the Rivers Pollution Commission in their report on the Mersey and Ribble basins, was considered, but was regarded as only admissible under exceptional circumstances, on account of the waste entailed by the process.

The agricultural mode of dealing with sewage, namely—by irrigation, was advocated as at once effectual, consistent with sanitary requirements, and economical. In situations where land could be procured at a reasonable cost irrigation might be employed; it effectually removed the dangerous impurities in sewage, and discharged the effluent water in a state practically pure into the watercourses of the country, and this could be accomplished without prejudice to the public health and without inconvenience to the senses. The process of irrigation was to a great extent independent of the state of the weather, being but little arrested either by continuance of wet or cold weather; and produced to the agriculturist such results as no ordinary management could accomplish. The farms at Hornchurch, Barking, Croydon, and elsewhere, had furnished evidence of the large returns that irrigation, when judiciously managed, was capable of producing.

The author maintained that irrigation was the only known process that had been found in practice to purify sewage completely. It was in no way injurious to health, and was calculated to prove a source of profit, with the exercise of reasonable care. Experience and existing examples had proved, that every description of land, when properly laid out and underdrained, was suitable for the reception of sewage. Although different soils produced various degrees of purification, all were found to appropriate the fertilising constituents of liquid sewage so as to render the effluent water perfectly innocuous.

The difficulties of procuring suitable land were sometimes considerable. Land should be selected with regard to the special circumstances of each case, rather than with reference to the simple requirements of engineering expediency. The points specially considered were, the distance from urban districts, the proximity of the farm to a suitable market for the produce, and its relative position with regard to the direction of the prevailing winds.

The objections raised to irrigation, as a means of propagating entozoic disease, did not appear to be supported by facts; but, being admitted, they could be met by the employment of the tar acids, which experiments had proved to be absolutely destructive

to animal life in the form that objectors supposed it to exist. If sewage irrigation was attended with the dangers apprehended, the same objection would hold to the employment of all ordinary kinds of manure.

The determination of the area of land requisite for the treatment of the sewage of a standard number of people depended on so many circumstances, that it could only be arrived at by experiment and experience. In each existing example there were varieties of circumstances that would influence the conclusion to be arrived at, sewage being sometimes strong, at others weak, and the soil free or compact in every possible variety, the determination of the requisite area would necessarily be varied accordingly, but so far as the determination of the question had been carried, the balance of opinion indicated a proportion of about one hundred people of all ages to 1 acre of average agricultural land; and much, however, depended on whether irrigation was employed merely as a mode of abating nuisance, or as a source of pecuniary profit.

Irrigation was practised on the large scale in three different ways—by catchwork, when the surface of the ground afforded sufficient inclination for the sewage to flow off; by the pane and gutter, when the surface inclination was but slight; and by ridge and furrow, or the bed system, when there was not sufficient surface slope to admit of the employment of the other methods. The latter was the most refined mode of applying sewage to land, and, although usually attended with more expense, there was much to recommend it; narrow beds were to be preferred to those of large size, as being more economical to form, and calculated to turn the sewage to the best account.

The author advocated a considerable degree of filtration before discharging sewage over the surface of the ground, and directed attention to the various forms of channels and distributing apparatus in use. Much prejudice existed against the employment of irrigation, because a due degree of filtration had not usually been observed. It was therefore important that every precaution should be taken in details to render the principle of irrigation acceptable to the public.

A MONSTER CATALOGUE.

We learn from the *American Builder* that Mr. W. C. Hutchings, of Hartford, Connecticut, has just executed for Messrs. Mallory, Wheeler and Co., New Haven, a catalogue of their door-locks, knobs, padlocks, &c. The bronzes used to represent the metals are brass, steel, nickel, real silver, copper, and a mixture to imitate lacquer; besides there are colours representing mineral knobs, japan, &c. Some of the pages required nine workings. In printing the impression of 2,000 copies, four of Hoe's new stop cylinder wood-cut presses were kept running steadily for one year. The cost was 80,000 dollars.

MISCELLANEOUS.

NEW MASONIC HALL IN LONDONDERRY.—The Masonic Hall in Magazine-street, built at his own expense by the late Alex. Grant, Esq., after having for a time been in other hands, has recently become the property of the Masonic body in Derry, and has undergone thorough repair, having now been decorated in a style of ornamentation not only unsurpassed in any similar edifice in this country, but worthy of study, as a model of decorative beauty, by all the admirers of the fine arts in their application to practical uses.—*Derry Standard*.

MINERAL WEALTH AND INDUSTRIAL RESOURCES OF THE COUNTY CORK.—Some very fine specimens of valuable ores from mines on the estates of the Earls of Bandon and Bantry have been forwarded by those noblemen to the museum of the Royal Cork Institution, where they can now be seen. They consist of argentiferous ore, from the Earl of Bantry's property, discovered by Captain C. Thomas, containing one quarter of an ounce of gold to the ton of 20 cwt.; silver 346 do., and copper 3½ per cent.

Another specimen of ore from Coosheen mine, Schull, also discovered by Capt. Thomas, contains copper 52 per cent., and silver, 30 oz. to the ton. Lead ore from Killevenogue mine, near Bantry, is worth for lead £18 per ton, as well as containing 30 oz. of silver to the ton. Yellow copper from Horse Island, Bantry Bay. Also a specimen of barytes, manufactured by Captain Thomas, at Mount Gabriel mine, is worth from £4 10s. to £5 per ton of 20 cwt.

PROPOSED TRAMWAYS FOR CORK.—A project to lay down tramways in Cork, promoted by Messrs. Josiah Harris and Joseph Nelson, has been (says the *Constitution*) on foot for some time, and in a few days the necessary preliminary steps will be taken to bring it to a successful completion. The project embraces two lines of tramway, one starting from outside the terminus of the Great Southern and Western Railway, and after traversing Alfred-street, King-street, Patrick's Bridge and street, the South Mall and Grand Parade, Anglesea Bridge and Albert-quay, terminating at the Victoria-road; while the second will run from a junction with the first at the southern side of Patrick's Bridge, thence along Merchant's-quay and Warren's-place, joining again the other at the northern end of Anglesea Bridge. These extent of lines will embrace about two miles, and the cost of construction and equipment for them is computed at £5,000 per mile.

MALICIOUS INJURY TO A ROMAN CATHOLIC CHURCH.—At the Ballymena Presentment Sessions, held on Thursday, Mr. John Ross, builder, Belfast, was awarded the sum of £174, the full amount claimed for malicious injury done to a Roman Catholic Church at Portlengone, in November last, which was then in course of erection, by some party or parties unknown. Mr. Alex. O'Rourke, solicitor, appeared for Mr. Ross, whose claim was also sustained by Mr. Henry McConnell, surveyor, Belfast.

TEST FOR WHITE LEAD.—Take a piece of firm, close grained charcoal, and, near one end of it, scoop out a cavity about half an inch in diameter and a quarter of an inch in depth. Place in the cavity a sample of the lead to be tested, about the size of a small pea, and apply to it continuously the blue or hottest part of the flame of the blow pipe; if the sample be strictly pure, it will in a very short time, say in two minutes, be reduced to metallic lead, leaving no residue; but if it be adulterated to the extent of ten per cent. only, with oxide of zinc, sulphate of baryta, whiting or any other carbonate of lime (which substances are now the only adulterations used), or if it be composed entirely of these materials, as is sometimes the case with cheap lead, it cannot be reduced, but will remain on the charcoal an infusible mass. Dry white lead (carbonate of lead) is composed of metallic lead, oxygen and carbonic acid, and, when ground with linseed oil, forms the white lead of commerce. When it is subjected to the above treatment, the oil is first burned off, and then at a certain degree of heat, the oxygen and carbonic acid are set free, leaving only the metallic lead, from which it was manufactured. If, however, there be present in the sample any of the above mentioned adulterations, they cannot be reduced to metallic lead, nor can they be reduced, by any heat of the blow-pipe flame, to their own metallic basis; and being intimately incorporated and ground with the carbonate of lead, they prevent it from being reduced. It is well, after blowing upon the sample, say for half a minute, by which time the oil will be burned off, to loosen the sample from the charcoal, with a knife-blade or spatula, in order that the flame may pass under as well as over and against it. With proper care the lead will run into one button, instead of scattering over the charcoal, and this is the reason why the cavity above mentioned is necessary. A common star candle or lard oil lamp furnishes the best flame for use of the blow-pipe; a coal oil lamp should not be used. By the above test, after a little practice, so small an adulteration as one or two per cent. can be detected; it is, however, only a test of the purity or impurity of a lead, and if found adulterated, the degree or percentage of adulteration cannot be well ascertained by it.

COMPRESSED GUN-COTTON.—The *Globe* observes that "Abel's compressed gun-cotton, prepared from pulp, may now be said to be finally adopted as the most suitable agent for torpedoes, the demolition of bridges, buildings, &c., and the removal of marine obstructions. Recent experiments have shown conclusively that gun cotton prepared according to Abel's process does not explode unless fired with a detonating fuze. Where a magazine stored with this explosive from roof to cellar to catch fire, it would simply burn out like any ordinary building; it would not explode. On the contrary, when fired with a detonating fuze the compressed gun-cotton explodes with fearful violence, shattering to atoms whatever it may be in contact with. A disc of the cotton may be burnt on the drawing-room table if lighted with a taper, but if ignited with a small detonating fuze the

same amount of material would suffice to blow out the windows and take off the roof. Large trees can be cut down completely and instantaneously by a necklace of discs hung round them and exploded. Buildings, such as Martello towers, bomb proof casements, or bridges, can be utterly demolished by comparatively small charges of gun-cotton simply laid on the floor, or suspended under the arch. For torpedoes to act in deep water it is usual to employ about 500 lbs. of gun-cotton; 50 lbs., however, will suffice to blow a hole through a ship's side, if the torpedo come in contact with the vessel."

PUBLIC CLOCKS IN LONDON.—The Bank of England clock, in the roof, is a marvel of mechanism, as it is connected with all the clocks in the Mechanic Offices. The hands of the several dials indicate precisely the same hour and second, by means of connecting brass rods (700 ft. long, and weighing 6 cwt.), and 200 wheels; the principal weight being about 300 lbs. The General Post Office clock, by Vulliamy, is a beautiful work of art on a small scale; its pendulum-bob weighs 448 lbs., and requires only about 33 lbs. to cause it to vibrate 2 min. 20 sec. on each side of zero—an extremely small motive power. The clock of the Royal Exchange, manufactured by Dent in 1843, has been pronounced by the Astronomer Royal as "the best public clock in the world;" the pendulum weighing nearly 4 cwt., is compensated, the first stroke of the hour is true to a second, and it can be also set to any fraction of a second. This was the first turret clock constructed by Mr. Dent. The Westminster Palace clock, designed by Mr. Denison, and made by Mr. Dent, jun., about 1855, has four hour dials, each 22 ft., in diameter—the largest in the world with a minute hand; the great wheel of the going part is 27 inches in diameter; the pendulum is 15 feet long, and weighs 600 lbs.; and the scape-wheel about half-an-ounce. This clock is said to be eight times as large as full-sized cathedral clocks; it requires two hours a week to wind it up, and reports its own time to Greenwich by electrical connexion; the cost has exceeded £22,000, and the gilding of the clock-tower £1,500.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Chief Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

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To the rich as well as the artisan and the labourer the same perfection of workmanship of the movement and accuracy in time-keeping are requisite; and, in order to meet the avocation and position of any purchaser, Mr. J. W. Benson, of the City Steam Works, 55 and 60 Ludgate-hill, and Old Bond-street, London, has, for many years past, paid close attention to the production of watches and clocks, which are adapted for all classes and climates, and at prices ranging from £2 to 200 guineas. Illustrated pamphlets on watch and clock making, with designs of jewellery, &c., forwarded post free on receipt of two stamps.

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O. L., Waterford.—You can have a perfect set of *Irish Builder* from commencement. Send order and remittance to our Publisher.
F. and Son, Glasnevin.—The *Irish Builder* not being published "within seven days," cannot be registered as a "newspaper," hence the cause of your complaint.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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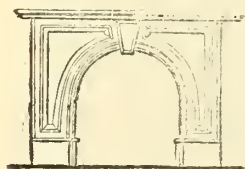
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TESTIMONIALS.

From **WILLIAM TITE, Esq., M.P. for Bath, and Architect of the
Royal Exchange, London.**

House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have
used both the sorts of Cement manufactured by your firm, and
that of Messrs. Francis and Son; I mean the Cement usually
called Roman Cement, or the more recent introduction of
Portland Cement. I believe these Cements, manufactured by
either of your firms, to be equally good. I know no difference,
chemically or practically, between them; and I should
use, and authorize to be used indifferently, either one or the
other. You are at liberty to use this note, if you think it ne-
cessary.—I am, Dear Sir, your obedient servant,
Messrs. White & Son. (Signed) **WILLIAM TITE.**

From **R. O. MINNIE, Esq., Surveyor to Board of Ordnance, London.**
War Office, Pall Mall, London, S.W.,
3rd March, 1864.

GENTLEMEN,—In reply to your request, I have much plea-
sure in stating my favourable opinion of the quality of your
Portland and other Cements, which have been extensively
used in the Public Works connected with the War Department
at home and abroad, especially in several of the fortifications
now being erected in this country. On all occasions within
my knowledge the quality has been equal to that of any other
manufacturer, and has given great satisfaction.—I am, gen-
tlemen, your obedient servant,
(Signed) **R. O. MINNIE, Surveyor.**

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The Irish Builder.

VOL. XIII.—No. 276.

Episcopal Residence, Mullingar.

THE design of Mr.
William Hague, 175

Great Brunswick-street, has been accepted for the above building. An advertisement calling for tenders appears in our columns. The second premium has, we are informed, been awarded to Mr. J. J. O'Callaghan, Merrion-row.

With reference to this competition, we have just received a letter from "A Member of the Committee," which we print in full on another page. Having in our issue of 1st instant given place to two letters from competitors, we must in justice allow "the other side" to be heard in their defence.

In a former volume, to which we have just referred, we published a paper read before the Royal Institute of the Architects of Ireland on the subject of "Competitions," by Mr. John Lanyon. In a discussion which followed the reading of the paper, a member observed:—"Referring to the recent breaches of faith arising from the non-compliance with the conditions laid down in competitions, it appears to me that we shall never get the public to believe that we are in earnest in our effort to induce them fairly to abide by the rules, until they see us seriously and honestly engaged in reforming our own conduct in reference to the same matter. When an architect sends in drawings for a competition, he, by that act, signifies his acceptance of the prescribed conditions; if, for instance, one of these be that the premiated design is to become the property of the committee, and that the prize is to be £50, every architect sending in drawings thereby agrees that they shall belong to the committee if he be awarded the first place and gets the premium of £50, and in like manner he accepts the other conditions, as to the cost of the execution of his design, the accommodation to be afforded, and so forth. If he then, by his professed acquiescence in these conditions, obtains the opportunity of having his drawings (which in reality violate them) examined and considered by the judges, he commits, in my opinion, a very dishonorable act, and when in addition to the abstract question of the morality or immorality of the matter it is borne in mind that through these false pretences he is seeking an opportunity of wresting the prize from his more honest professional brother, and thus taking the bread out of his mouth, his conduct assumes a very grave aspect indeed. He does a double wrong; he first gains admission to the lists, by pretending to conform to rules which in reality he is not abiding by, and then, when the contest begins, he seeks to overcome his opponents by the use of weapons which are prohibited by the laws of the tournay, and with which they are unprovided. We are too fond, as it seems to me, of abusing the public, and sermonising our judges, while we have not a word of blame for the architect who has equally broken faith, and indeed he is more blameworthy than the judges, in the same degree as the tempter to wrong is worse than he who yields to temptation laid before him."

GLIMPSES OF THE IRISH NATION.

A.D. 1793-4.

"Catch a glimpse of the days that are over."—MOORE.

IRELAND—civil, military, and ecclesiastical—eighty years ago presented some rare sights. Some odd notes of the times, and illustrative of the state of society in these times, will possess an interest for persons of all ranks and professions, whether of the guild of literature, science, art, or trade. The Dublin Press of January, 1793, report:—"Tucking mills are intended to be erected in the Liberty for the convenience of the clothiers, to be supplied by water by means of a steam engine. The place generally thought of for this, is the large space of ground at the corner of the Upper Coombe, Pimlico, formerly an extensive brewery. This will prevent the costs of carriage to and from Chapelizod, and almost daily attendance of the manufacturers while the goods remain there."

The City of Dublin state coach, used at the Lord Mayor's inauguration ceremony was built by William Whitton, of Dominick-street. It was a most superb and costly affair in body, carriage, harness, and painting. It was 20 ft. in length, 8 ft. in breadth, and 11½ ft. in height, and sat so lightly withal upon its springs it could be moved easily by a single person of moderate strength. Coach-building in Dublin at this time was in its prime, and native workmen were plentiful, and well remunerated. How fares Irish coach-building to-day? Alas! alas!

January 10, 1793, under the head of Dublin News we find:—"During the recess of Parliament (the Irish) the magnificent apartment in which the lords meet has been newly furnished; the throne has been covered with rich velvet, adorned with gold lace; the seats for the peers have also had new covers; the glasses, &c., have been newly framed; the house painted, and in many other respects its appearance highly improved. The temporary commons-room has been also elegantly prepared for the reception of the members. The House of Commons had been partially destroyed by fire the year before, yet "dear, dirty Dublin," as she has been called since, was not then dirty or in rags, nor did her representatives sit in a dog-kennel, or breathe the effluvia of a putrid Liffey. Public works were then prosecuted with vigour, and the rebuilding of the House of Commons was commenced immediately.

Died, in the latter end of the year 1794, "in Britain-street, deservedly lamented, Arthur O'Neil, Esq., who was a lincal descendant of Owen Roe O'Neil, the formidable competitor of Cromwell, and who once gave laws to Ireland." Once sang Thomas Davis:—"Soft as woman's was your voice, O'Neil; bright was your eye. Oh! why did you leave us, Eoghan? why did you die? Your troubles are all over, you're at rest with God on high, But we're slaves, and we're orphans, Eoghan! why did you die?"

A noble mansion was in the market in this year, but it brought a good price under the auctioneer's hammer. The papers of the day write:—"Kerry House, at Stephen's-green, which has been so long a time in the market, was disposed of yesterday (December 8, 1794) for £7,000. £10,000 were offered and refused for it in the summer of 1792."

Here's an item which carries a moral in it for present application in our city:—"On yesterday a poor man broke his leg in the lane leading from Fleet-street to Carlisle Bridge. He very philosophically thanked God he had one left to the good, to the unexpressible satisfaction of a paving commissioner who was present at the accident." The Irishman of the last century, on one leg or two, hobbled over Irish granite, but legs are broken nowadays—thanks to our civic magnates—on Welch whinstone. Well, well! A stone is a stone, we suppose, and where's the difference? None, except the folly, perhaps, of shipping coals to Newcastle!

Irish mining enterprise was rife in the year 1794. We find in the newspapers of the day:—"Mr. Raspe, the celebrated mineralogist, has been lately in Cork, after having explored the mines in the vicinity of Killarney, and his researches have been crowned with the greatest success. Among many others, he has discovered the richest cobalt mine in Europe, a ton of the ore of which is computed at a moderate calculation to be worth £250 sterling; and what renders this ore the more precious is, that it is in great demand in China, where the India Company export annually to the amount of £180,000 worth, which they principally draw from Saxony, at a very heavy expense. A company of very independent men is already formed in Killarney to work this mine. Mr. Raspe has also discovered (according to the same papers) a very rich mine of gold in the province of Munster, a specimen of which he laid before the Royal Irish Academy." Gold and silver are still in Ireland, and in abundance, but the only "diggings" left us are the potatoes.

Item.—1794. "The assize of the twelve-penny loaf is 7lb. 6oz. 2dr. Wheat, £2 14s. 6d., and flour, £2 19s. per quarter. Wheatmeal is 1s. 7d., and oatmeal, 1s. 11d. per stone." And there was bread and work for all.

November 21, 1794. The Dublin journals report:—"In consequence of the heavy fall of rain, Patrick-street, Patrick's-close, Bull-alley, Bride's-alley, &c., were totally inundated—the houses several feet under water; as also the Lower Castle-yard, Palace-street, Crampton-court, and that part of Dame-street impassable for foot passengers. Boats plied all yesterday in Patrick-street, Castle-yard, &c." The beautiful Puddle was then playing one of its periodical pranks—a not unusual thing early in the present century, as well as the last. The stream was somewhat pure in these days, and it kissed the Liffey very often in Ship-street. What a "meeting of the waters" takes place now on Wellington-quay! Flow on, thou mother of dead dogs and murdered innocents—our glory and our shame.

Here's a city scrap about combination among workmen in the Irish Parliamentary days of 1794:—"The journeymen carpenters were acquitted of the combination and assault, but were found guilty of the riot, and sentenced to be imprisoned for six months, and to be bound to keep the peace for three years, themselves in a security of £100 each, and to find sureties for £50 each. Thirty-five journeymen shoemakers (on the same date, November 1, 1794) were arraigned under twelve different indictments, founded on the 19th and 20th of the King, for unlawful combination, under pretence of regulating trade; of these six only were tried, and these were found guilty, viz., James Bullan, Robert Adams, and James Fulham. They were sentenced by the court to a fine of £100 each, reducible, however, at the court's direction, according to their demeanour before the next commission." The justices of 1794 treated mechanics, at all events, as if they were estates gentlemen. As to sureties and fines, they mulcted pretty high—all because a trade was then considered a respectable profession. Why is it not considered so still? It is so considered by everyone except fools, who do not care to earn their bread by the sweat of their brow, and who would rather starve with a B.A. and M.D. or an LL.D. at the end of their names than be considered "only a mechanic."

Exports in October, 1794, show the prosperity of Irish trade and manufactures. Here's one entry from the papers of that date:—"Independent of the large export entries within these few days past, of linens, diapers, sacking, ticken, and also large quantities of feathers, &c., for America, a very respectable house in this city (Dublin) has sent between six and seven thousand yards of woollen goods to New York. This last circumstance must afford the utmost pleasure

to every well-wisher of the manufacturing and commercial interests of this country, as such exports may extend our trade to the other side of the Atlantic, if a war with the American States should not unfortunately put a stop to it—an event we should indeed heartily deprecate.” Belfast and Dublin exported largely in these days, and continued to export until the period of the Union, when the exports began to decrease, year after year, for many years.

In the autumn assizes of this year, the City of Cork proved a maiden one. Irish legislation was then *adscriptus glebe*, and Irish labourers reaped their own harvest betimes, as well as their landlords; they conspired to make themselves happy, and found themselves generally so.

About the same time the Dublin papers are advised from Cork—“That such a promising harvest is not in the memory of man as that in the western parts of that county, and to add to the happiness of the poor, immense quantities of all kinds of fish are taken in the bays of Dunmanus and Bantry. In the latter bay a great haul of pilchards was lately made, which gives some hopes that this fish, so long a stranger to the Irish Coast, is returned once more.”

“Crimping” and “impressment” was not uncommon in the last decade of the Irish Parliament. Here’s a good story from one of the papers of these days. “On Monday a recruiting sergeant went into a public house in Thomas-street and enlisted a hulking recruit, apparently 6 ft. high, who sat in the next seat to him. The fellow declared himself ready to serve his Majesty, but insisted on not stirring from the spot until he got half of the bounty of six guineas offered by the sergeant. The money was given instantly, and the reckoning paid; but what was the astonishment of the sergeant, on finding his recruit without feet, hobbling after him on a pair of wooden stumps. The sergeant demanded and insisted on having his money; the recruit as positively refused, alleging he was ready to be attested and to do the best he could for the King’s service. Their high mightinesses the mob entered into the spirit of the trick, took the part of the cripple, and hooted the sergeant, so much out of patience and into shame, that he was very glad to retreat to triumph in his disgrace.”

Lambay Island was utilised in the last century for drafting thereto recruits, who deserted in numbers in the city. The old castle on the Island was converted into a temporary barracks. One of the papers says:—“They are at first conveyed in coaches to Rush, and thence in boats to the Island, where they remain in safety, till they are collected in numbers sufficient to be sent to England, there to learn the military discipline.”

“Donnybrook,” “John’s Well,” and the “Strawberry Beds” had a rival in “Leixlip Spa,” in the latter end of the last century. To this famous spa the sport-loving citizens of Dublin congregated in thousands, rich and ragged, minister and mendicant. Some idea of its popularity may be gleaned from the following magazine extract, written at the date of the enumeration given below, August, 1794. “A gentleman confined to his room on Sunday last undertook for his amusement to make an estimate of the number of persons who passed on that day through Leixlip on their way to the new Spa, for which purpose he placed himself in his window at six o’clock in the morning, with pen, ink, and paper, and between that hour and five in the afternoon he reckoned 55 coaches, 29 post-chaises, 25 noddies, 20 gigs, 6 open landaus, 221 common cars (Larry Doolans, of course), with company, and 450 horsemen, which, at the lowest computation, must have carried upwards of 3,000 persons, to which, if 1,000 be added from the adjacent parts of the coun-

try, we will find that upwards of 12,000 persons visited the well on that day, attracted by the wonderful accounts published of the cures effected by these famous waters.”

Glimpses of the Irish Nation may be even seen in these short items of shipping intelligence. “The Ship, *Irish Volunteer*, David Munro, Master, from Charleston and Cadiz, is arrived in this harbour (Dublin). Again: The *Shilelagh*, James Chambers, Master, from London, for this port, was safe at Falmouth, the 3rd instant, waiting a fair wind.” If not a sprig of shilelagh, she was, at least, a brig of shilelagh, and her owners were not ashamed to christen her after the land she hailed from.

Shakespeare, it would seem, had some descendant in Ireland at one time. A correspondent who signs himself P. R. R., writes to the *Anthologia Hibernica*, in February, 1793: “Sir,—There lived in Drogheda about fifty years since one Guy Harrison, who boasted of his descent from Shakespeare. He said he was his grand nephew, and delighted in speaking of his uncle. I had the anecdote from a gentleman, who often conversed with him, but who was then too young to take much interest in anything that related to our immortal bard. Harrison kept a little shop, in which he sold thread, tape, lace, and other small haberdashery; his circumstances were indigent. Should not some enquiry be made concerning the family of Harrison? Perhaps, if he had any children, some of them may be still in being.”

Since our countryman Malone wrote his celebrated commentaries, and gave the world his edition of the great dramatist’s works, thousands of heads and pens have been busy at work on the life of Shakespeare, but all their labours have added nothing to our knowledge of the *personnel* of the man. Shakespeare lives; but the majority of his critics die of inanition and are forgotten.

The papers of February 2nd, 1793, record that “The bridge so long talked of and so universally wished for at Waterford, will shortly be commenced, the size of which is to be fixed on the 27th instant.

The Commissioners appointed by Act of Parliament for building a bridge over the Suir, met, pursuant to a notice for that purpose, when no less a sum than £22,300 was subscribed, exclusive of £15,000 which the Corporation are to pay the proprietor of the Ferry. One-fifth of the sum subscribed was deposited in the hands of William Newport, Esq., who was appointed receiver by the Commissioners.”

This wooden bridge, supported by forty sets of oak piers, or rather trestles, still exists over the Suir. It was erected by a Mr. Cox, a native of Boston, in the United States. It is 832 ft. long, 40 ft. wide, and it cost £30,000 in its construction. Similar bridges were erected at Derry, Ross, and Wexford, by the same gentleman. Long years before these bridges were commenced, George Semple, the architect of Essex-bridge, Dublin, furnished plans to public committees in Waterford, and at the other places, on the best way of erecting either wooden or stone bridges, on these sites. He did not live to see them erected, however. Now we would say that the Corporation of improving Waterford should come to the resolve of removing at once and for ever this old unsightly and rickety bridge over the Suir, which has now existed for nearly eighty years. Let them purchase at once the trust and abolish the toll. It is an eyesore and an evil to the City of Waterford. To keep pace with the improvements of the river and port, the public buildings must be increased, and next to sanitary reform nothing is required more urgently than a good substantial and ornamental bridge over the Suir. The city may please itself whether it shall be of stone or iron.

Our last item is about the ladies, and like their postscripts, it is one of the best. The

peeresses of Ireland during the last days of the Irish Parliament were not ashamed to beg with box in hand at the church doors for the poor of Dublin. The papers report that on April the 24th, 1793:—“A most excellent charity sermon was preached in St. Peter’s Church by the Rev. W. B. Kirwan, and a collection made in aid of the fund for the support of the Female Orphan House, amounting to £804 2s. 6d. The collectors were: Ladies Antrim, L. Connolly, De Veschi, Gosford, Leitrim, Kingsborough, Headford, Sunderlin, and Fitzgibbon, Mrs. Knox, Ponsonby, Howard, Weldon, and Vesey.”

What a galaxy of silks, satins, and smiles at the church doors; but the eloquence of Walter Blake Kirwan would draw blood from a turnip, and honey from a lump of Dalkey granite. How many Irish countesses beg to-day at church or chapel doors for the poor orphans or indigent roomkeepers of Dublin? Our heart is heavy at the thought, and we must drop the curtain for the present on these glimpses of the Irish Nation.

DUBLINIENSIS.

ON THE SELECTION AND USE OF STONE FOR ENGINEERING AND ARCHITECTURAL PURPOSES.*

(Continued from page 148.)

IN the construction of lines of railway and other large public works stone is frequently used which is obtained from the cuttings or excavations. Now, the contractor, generally to save cost, blasts the stone, which is a most fatal mistake if durability is required. For although it may not be at first apparent, the blasting shakes the stone, and, before many winters are over the stone begins to crumble to pieces. Of course, in case of granite and other very hard stones, this remark does not apply, for having little or no stratification it cannot be quarried without blasting. If it is desired to put nothing but good stone into a structure, the material should be quarried and weathered for some time before being used, as this serves not only as a check against the use of inferior stone, but prevents the unsightly greening after erection which, for a time, so often disfigures a building, even if built with the most durable stone. At the Bath quarries some of the stone raised in the winter time is stacked in the workings and dried by coke fires in brasiers. Some stones, if wrought and put into a building green, with the quarry water in it, will go to pieces under the first frost, whilst the same stone, if seasoned under cover, will often stand well. In choosing a particular bed of stone in a quarry it must be remembered that the lowest beds are not always the best. For instance, in the Portland series the hardest and most durable bed is on the top.

It is often desirable for stone to be tested by having a chemical analysis made, also by a hydraulic pressure for the crushing strength, as well as in a testing machine to obtain its tensile strength. In all these cases the specimens should be taken from various parts of the quarry, and from each bed, and certainly not less than six specimens should be selected from each to arrive at reliable results. We now come to the second division of my paper, on

THE USE OF STONE.

Having found the quarry which produces stone of the quality you require, the next step is to specify the particular bed or beds, which you desire to use. There is a great deal of looseness on this point in the practice of engineers and architects. Too often a stone of a particular district is specified without regard to the fact that, in the district named, stone of many different qualities are raised, some of which cost much more to work than others. This of course leads but to one result: the most profitable stone for the quarryman and mason is used, instead of the most durable. Another great evil is the outcry for large blocks, and the insisting that columns, figures, &c., should be cut out of one piece of stone. Many a good bed and

quarry has been closed or rejected because it did not produce large blocks. Witness the case of the Mansfield Woodhouse Quarries, where the stone was only used to a very small extent in the Houses of Parliament, because at that time blocks could not be got out large enough, but where it was used it has stood exceptionally well, in contrast to the stone from Anston, which appears to have been selected principally because large blocks could be obtained.

In specifying the qualities and sorts of stone to be used in a structure, it should be remembered that in this climate decomposition sets in generally on the parts facing the S., S.W., and W., arising from the fact that the most prevalent storms of wind and rain are from those quarters. Lichens, which are a great protection to stone, unfortunately won't grow on structures in large towns, but they form an excellent shield to the stone in the country.

A great deal has yet to be learnt as to the proper use of the various and beautiful colors of different kinds of stone, and it is of more importance to have variation of colour in a large town, because the fronts exposed to the wind and rain will always exhibit, more or less, the natural colour of the stone, not being hid by lichens, as in the country. Some stone stands very well as ashlar or for plain mouldings, but if used for cornices, plinths, or in any part where damp or where the wet stands, so surely will it decay. It, therefore, is very necessary to specify one kind for the ordinary face work and a stone of superior durability for the portions exposed to wet and frost. However durable the stone may be, a good drip of weathering should be given to cornices or heavy projecting strings, as it enables the rain not only to run off, but at the same time to carry with it any dirt or dust that may have lodged on it, which, if left, grows moss and weeds, both very injurious to the durability of the stone.

The use of metal cramps, iron particularly, is very objectionable, they nearly always burst the stone after a time; slate dowels are the best. The stone parapet walls on the Thames Embankment are all built with slate dowels. Some of the masonry in the lower portions of Sir Christopher Wren's towers at Westminster Abbey are specimens of the evils of metal cramps. Bedding stone properly is a most important thing. It is a vicious plan to make the bed of columns or other masonry hollow, instead of true and square with the face; it invariably causes the stone to spall at the outside of the joint, as in the case of the Hölborn Viaduct, besides causing the weight very often to be thrown on parts not intended to carry it, and a host of other evils, not to mention the unsightliness of walls and columns cracked in all directions. In masonry the joints should never, as a rule, be mitred, or in lintels. There is one exception to this rule, namely, in the case of a pointed arch, which should be jointed in the centre: not with a keystone, as in a segmental arch. Where the stratum is thin, and the structure is exposed to heavy, driving rains, the outer courses of stone are often bedded at a slight angle outwards and downwards, and the mortar is kept back an inch or so from the face. This is done to keep the interior dry by preventing the rain from driving through the joints.

In designing rubble walls for buildings they should not be shown too thick, for if they are the masons are apt to build it with two faces, and to fill up the centre with loose rubble, often with little or no mortar. If exposed to vibration of any kind, they are very liable to burst. I have seen a great number of instances of this—one in particular, a church tower in the Lake district, which was cracked from top to bottom, and all round—in fact, bursting under the vibration caused by ringing the bells, and the superincumbent weight of the spire.

In walling, masons always like to put the best face of a stone outwards, and the result is you get large spaces which are filled up with mortar and spalls; few workmen can resist the temptation to put a long stone

parallel with the face of the work, instead of endways. The want of bond stones is the great defect of walling generally. A good plan where the stone runs small is to build three or more courses of brickwork right through at certain levels to act as a tie. With stone from most geological formations, it is of great importance that it be placed bedwise, or as it lay in the quarry. This, if not properly attended to, leads rapidly to general decay. There are various methods of finding the beds of stone for instance—rains always run from top to bottom, or with a downward direction. Shells or fragments of shells lie flat as they would on the sea-shore. Most sandstones the streaks or layers exhibit the bed very plainly.

In conglomerates, the pebbles, like the shells, are generally lying on the flat side. Added to all these, it is generally usual for the quarryman, before sending the block away, to mark on it which is the bed. The bed is, therefore, not so hard to find as some try to show, and a little careful examination of the peculiarities of the particular stone you are using will make you detect at once if the stone is on its bed or not. After a structure is erected, or, as in the Scotch method, during construction, it is usual if the work is of any moment to clean it down, too much attention cannot be paid to seeing that all the mortar and slush is thoroughly washed off, for if it be not, the frost and rain will bring it off, and it gathers on the projections and under the mouldings, causing them to decay. It is a common practice when a stone gets dirty or discoloured, or is decaying, to cut or drag off the surface of the stone. This should never be done, for if the stone is dirty it can be rubbed and washed to get it clean. Stone throws out, as it were, a hard skin for its protection when first exposed, and if that skin be taken away the protection is gone, and it is very liable to decay. If the stone is really decaying, any number of new faces won't stop it. In the construction of works where much stone is used, it is very important to have clerks of works and inspectors who have served as masons. In the greater number of cases it will be found that in early life most of the clerks of works, inspectors, and foremen have been carpenters or joiners. Too often you find masons knowing nothing beyond their trade, while carpenters and joiners are a better-informed and superior class of workmen. A great deal of the inferior stone that is used, and the bad bedding that is permitted, is due, I think, to the fact that the workmen know that their masters are not masons. I am not finding fault with the men who by their industry have raised themselves from journeymen to positions of trust. Far from it, it is most creditable to them; but, on the other hand, it is equally discreditable to the masons that they allow the journeyman from another trade to take posts of trust, which they might fill with greater advantage, where stone is much used, if they were steady and educated themselves for it.

Although I must now come to a close, do not think the subject is exhausted. I could say a great deal more on this important material; but as I hope there will be a valuable discussion afterwards from the members and gentlemen present, some of whom are connected with quarries, I shall defer any further observations to a future time. In some parts of my paper I have made extracts from Sir Charles Lyell's and Sir H. De la Beche's valuable works, from blue-books, and other publications which I have consulted. To those familiar with works treating on stone (I am sorry to say, very limited in number), these extracts will be at once apparent. In conclusion, if engineers and architects really desire durability, they must be prepared to pay a reasonable price, both for the raw material and the workmanship on it; and they will, I think, find they will be heartily seconded in their endeavours, both by the quarryman and mason, in the selection of the best stone; and in the long run it will prove not only one of the best of building materials, but the cheapest.

ANIMAL TEACHING.

We find the annexed article in the pages of *Land and Water*. It is from the pen of Mr. C. Clinton Hoey, a name not unknown on the Dublin, London, and Glasgow press. The article in question will possess an interest for Irish readers from its historic associations, and otherwise:—

After eighteen centuries of a progressive civilisation, it seems strange that such little advance has yet been made in the domestication of birds, beasts, and fishes. Dogs, deer, buffaloes, camels, elephants, horses, and several other kindred species, have been long domesticated and taught to perform certain services for their masters and owner, but the education of the animal, the bird, and the fish, as auxiliaries in man's service, has not yet rightly begun. Every creature, from mammoth to mollusca, from a boa constrictor to an earth-worm or an insect, possesses a power capable of being utilised, and, when directed by a wise and diligent training and teaching, each and all can be made more serviceable in the scale of nature and art. What would man be without training and teaching? He would be an animal less serviceable to his species than the most ungainly quadruped that moves instinctively on all fours. A tim must come, one day, if this world continues, when many wild and undomesticated creatures will become extinct, and when their reproduction will become impossible to man. Some whose hides, or feathers, or horns, or tusks, or other outer coverings, or inner contents, form articles of trade and merchandise, will, unless we begin and reverse the order of things, pass away, and be seen no more, save in museums. Let us think over this suggestive matter, and see if it is not possible to domesticate and teach certain useful members of the bird, beast, and fowl creation, and preserve their species for all time.

We have all witnessed, in our time, the astonishing performances of certain animals, birds, and fishes, which were trained for the purpose of exhibition; but the majority of these, though they served to prove the possibility of a higher training, and a more useful one, yet in themselves they exhibited a lamentable amount of waste labour and waste power.

Long years before the American Rarey's name was heard as a "horse-tamer," a secret existed, as a family heirloom, among a sept of the O'Sullivans in the south of Ireland. This family was known as "The Whisperers," and they possessed the power of rendering as quiet as a lamb the most stubborn and unmanageable horse that ever existed. Whether they did anything more to a horse than breathe into his nostrils we know not, but by doing this, and by kind soothing, and other ways known to themselves, they effected their purpose and retained their fame. Putting the question of drugs, or stimulants, or other fascinating means aside, and coming to the point of pure and unadulterated domestication and teaching, perhaps there was no one person in modern times achieved so much success in animal teaching as S. Bissett. This man was a humble shoemaker. He was born in Perth, in Scotland, in 1721, but he afterwards removed to London, where he married a woman who brought him some property. Then, turning a broker, he accumulated money until the year 1759, when his attention was turned to the training and teaching of animals, birds, and fishes. He was led to this new study on reading an account of a remarkable horse shown at a fair at St. Germain's.

Bissett bought a horse and dog, and succeeded beyond his expectations in teaching them to perform various feats. He next purchased two monkeys, which he taught to dance and tumble on a rope, and one would hold a candle in one paw and turn the barrel-organ with the other, while his companion danced. He next taught three cats to do many wonderful things, to sit before music-books, and to squall notes pitched to different keys. He advertised a "Cat's Opera" in the Haymarket, and successfully carried out his programme, the cats accurately fulfilling all their parts. He pocketed some thousands by these performances. He next taught a leveret, and then several species of birds to spell the name of any person in the company, and to distinguish the hour of the day or night. Six turkey cocks were next rendered amenable to a country dance, and, after six months' teaching, he trained a turtle to fetch and carry like a dog, and, having chalked the floor and blackened its claws, he made it trace out the name of any given person in company. Bissett was equally successful in teaching gold finches.

After some reverses we find Bissett in Dublin about 1775, showing his different animals; and, again, on making some money, he purchased a public-house in Belfast, determining to give up animal taming. Growing restless, his old taste returns, and he takes to training and teaching animals once more. He began with a dog and cat, and, perfecting these in their lessons, he selects the most obstinate of the brute creation, an Irish pig, to experiment upon. The teaching of this unruly animal almost wearied

out Bissett's patience, and he was about giving up the task in despair when he bethought of a new mode of taming the young boar. After sixteen months of unwearied perseverance, he at last was rewarded by instilling a little reason into the pig's unreasoning cranium, thus proving that pigs can not only "see the wind," by common belief, but that they can be made useful in "raising the wind." During the teaching of his pig Bissett used to keep young piggy under his shoemaker's seat while he worked.

In 1783 Bissett brought his "Learned Pig" into Dublin, procured the leave of the Lord Mayor for his exhibition, and carried the city by storm. It was trained to be as docile and as obedient as a spaniel, and was taught to spell names, cast up accounts, tell exactly the hours, minutes, and seconds, to kneel and make his obeisance to the company, and do various other feats. Some petty officer, half armed with authority, broke into Bissett's room, assaulted the unoffending poor exhibitor, broke and destroyed everything, and drew his sword to kill the wondrous animal. Poor Bissett pleaded hard for the chief magistrate's leave, but he was threatened that if he offended any more with his daring performances he would be dragged to prison. Only it was a little too late in the ar, it is probable poor Bissett would have suffered at the stake for witchcraft.

After the break-up of Bissett's hopes, his anguish of mind produced an illness from which he never effectually recovered, and he died a few days afterwards of a broken heart, in Chester, on his way to London.

Now, although Bissett's power of training and teaching animals, birds and fishes was most remarkable, yet it was not of a practically serviceable kind in the interest of humanity. We bring forward his case, as an illustration in point, to show that the same patience and perseverance, if directed otherwise, could be made to produce the most beneficial results. We wish to see all the living species existing preserved and utilised for useful and serviceable purposes. There are many animals, as well as horses and camels, &c., whose power can be turned to advantage in useful labour if properly domesticated and trained, and many of these in their wild state, instead of existing as a nuisance upon the earth, can be made a blessing as auxiliaries to human labour and for human food. Whence arises the different species of dogs, and the set purposes for which they are trained? some for very questionable purposes at the present day. Cannot their usefulness in future be augmented? Is a carrier pigeon to always exist as our only feathered messenger? Are all our fishes in the ocean, and in our rivers, to exist for sport and food alone? Can we not harness them to some suitable service in scientific development in the deep, and in extending our knowledge of causes and currents in inaccessible places? Cannot we train or induce fishes to pay our shores visits at regular intervals, instead of being dependant on laws of chance? Is the feathered creation to remain for ever chary and affrighted of man? The bee gives us honey, the worm gives us silk, the cow gives us milk, butter, and food, the horse labours for us, the sheep clothes us, the fowl gives us bedding, yet we fall asleep in the arms of nature, contented to sleep, and awake, and work away in the old sing-song style.

Let us pause for a moment. Are we or are we not hunting creation to death? stamping out, burning out, rooting out with bullet, dirk, and dagger the work of God? without the least pause in our operations, without the least provision for our future supply. If we are not doing so with a vengeance, we have not read the signs of the times aright, or we have travelled this world in vain. Although it is too late to restore many things that are now irrecoverably lost to us in the animal creation, it is not too late to mend our ways, and exert our knowledge for useful purposes, on land and water.

The conclusions drawn by the writer are worthy of serious attention, and we have little doubt that such an indefatigable, practical naturalist as Mr. Frank Buckland, whose labours enrich the pages of "*Land and Water*," and are of such value to the empire at large, can carefully estimate the value of such judicious counsel. If we don't preserve, acclimatize, and domesticate for useful purposes, birds, animals, and fishes, while they still exist in their olden haunts, a day will come, when it will be too late for us to regret their value, and impossible to reproduce them. Ireland presents almost an unexplored field to the practical naturalist. There are many rare birds still who visit our shores, and very often shoals of fishes visit our southern and western coasts which are seldom seen eastward. The river and coast fisheries of Ireland need development. The Irish peasant seldom feasts upon game; but there exists no reasons why many thousands

of the male population around our coasts should not be helped to employ their time in the remunerative and industrial pursuits of fishing. In the sea around our island there is ample food and a mine of wealth. The sportsman and hunter have a wide field in Ireland, and a privileged one. Well, if the land is not, the ocean, to some extent, is a fishing common for the industrial poor. Would that they could use it, those who are in its vicinity, with profit to themselves and advantage to the nation.

GROUPING OF MEDIEVAL BUTTRESSES AND PINNACLES.

WITH this number we reproduce a lithograph prepared by Mr. E. Trevor Owen to illustrate his paper "On the Grouping of Medieval Buttresses and Pinnacles," read some time ago at meeting of the Royal Institute of the Architects of Ireland. We may mention that the illustrations are from some of the sketches taken on the spot by Mr. Owen whilst engaged for the work on the "Towers and Spires of England."

"In two examples (writes Mr. Owen) belonging to this period there are some points worthy of note. First, in that of the southwest tower of Peterborough Cathedral, the clustered shafts at its angles are remarkable, occupying the position of rectangular buttresses, their boldness of effect and the beautiful proportions of the crowning canopies, rich in remarkably well-cut and tracery crotchets; these canopies are square on plan, and set diagonally with the tower. The extraordinary height of the intermediate spire-like pinnacles, which are triangular on plan, having one face parallel to that of the spire, and rising over boldly-pierced openings seen well above the parapet line, together with the apparent littleness of the spire in reference to the tower, which is of very considerable height, are all points worthy of note.

"The other example—the Church of St. Mary the Virgin at Oxford—is nearly of the same date, but much more profuse in its enrichments. The tower buttresses are rectangular on plan, and of very massive proportions, rising boldly up to the top of an elaborately-pierced parapet, and finished with very richly-canopied niches filled with figures; the intermediate pinnacles, which rise more than half way up the spire, are also rectangular on plan, but placed diagonally in reference to the tower; the whole is exceedingly rich in carved work, and the characteristic Ball flower has been very freely used. The excessive plainness of the tower below and the spire above this clustering of beauty at the junction of each is rather remarkable; it must be borne in mind, however, that the tower is not seen at even a moderate distance, being cut off by the buildings to which it belongs on the side next the street, and surrounded on all others by those of the College. The whole skill of its designers appears to have been confined to the junction of the tower with the spire, and it is, perhaps, the best example of grouping to be found of the Decorated period, and it may fairly be classed before either Lichfield or Salisbury, the spires of which are of the same date."

THE REGULAR CARPENTERS' SOCIETY.

WE print a report of a special meeting held at the Carpenters' Hall, Lower Gloucester-street, on the evening of the 8th instant, and in doing so we are sorry to be of opinion that our readers will not be edified by the account of the manner in which its proceedings were conducted.

Our mission is one that advocates goodwill amongst men, and if anything gives us more concern than another it is the welfare of the working classes; but some of our contemporaries have, we are afraid, flattered our work-people so far as to make them believe that they are the most intelligent and clever of their

class in the known world, while the fact is they are far behind the working men of England, Scotland, and even some of the provincial towns at home, in the matter of decorum, toleration of one another at their meetings, and self-respect. It is painful to read the report which we append, particularly when we are asked to believe that the carpenters of Dublin are the "first body of men in the land." Whatever may be thought of our words in putting the matter before our readers, we must, as in duty bound, give, at least, a summary of the truth. This we have done in our report of the meeting; and, while deploring the necessity of being obliged to offer our advice, we do so with the aim of being useful, and with the hope that a review of their conduct appearing in print will stimulate, on their part, a desire for reform.

In the first place, we suggest that proper seats be provided to accommodate the members who visit the hall, as it is very undignified to be crowding one upon the other while deliberating matters of interest or importance. In the second place, there should be no smoking allowed during business; and proper persons should be appointed to see that men the worse for liquor do not enter the room; they in particular cannot be restrained, and their interruptions must be very annoying to the earnest and well-conducted. In the third place, it would be well if a programme were drawn up beforehand by some of their more intelligent members, consisting of resolutions bearing upon the question to be discussed, and men of ability chosen to propose and second them. It is the most vulgar thing in connection with meetings of men of no matter what station in life to be heard discussing a subject without any rule to guide them, and very annoying and tiresome upon an audience to be compelled to wait for a resolution to be written in the middle of a hot debate. If these few suggestions were looked after and adopted, other little matters quite as necessary—such as the proposer of a resolution, after he has spoken and laid his opinions before the meeting, having the right of reply to all objections raised against it, before it is put from the chair, &c. The absence of these formal proceedings is always sure to create confusion and cause a hindrance to the proper dispatch of business.

With respect to the present movement, we have nothing to say further than hoping that all will go well with both employers and employed, and that a feeling of justice and fair dealing will prompt man and master to arrive at a satisfactory settlement.

CORRESPONDENCE.

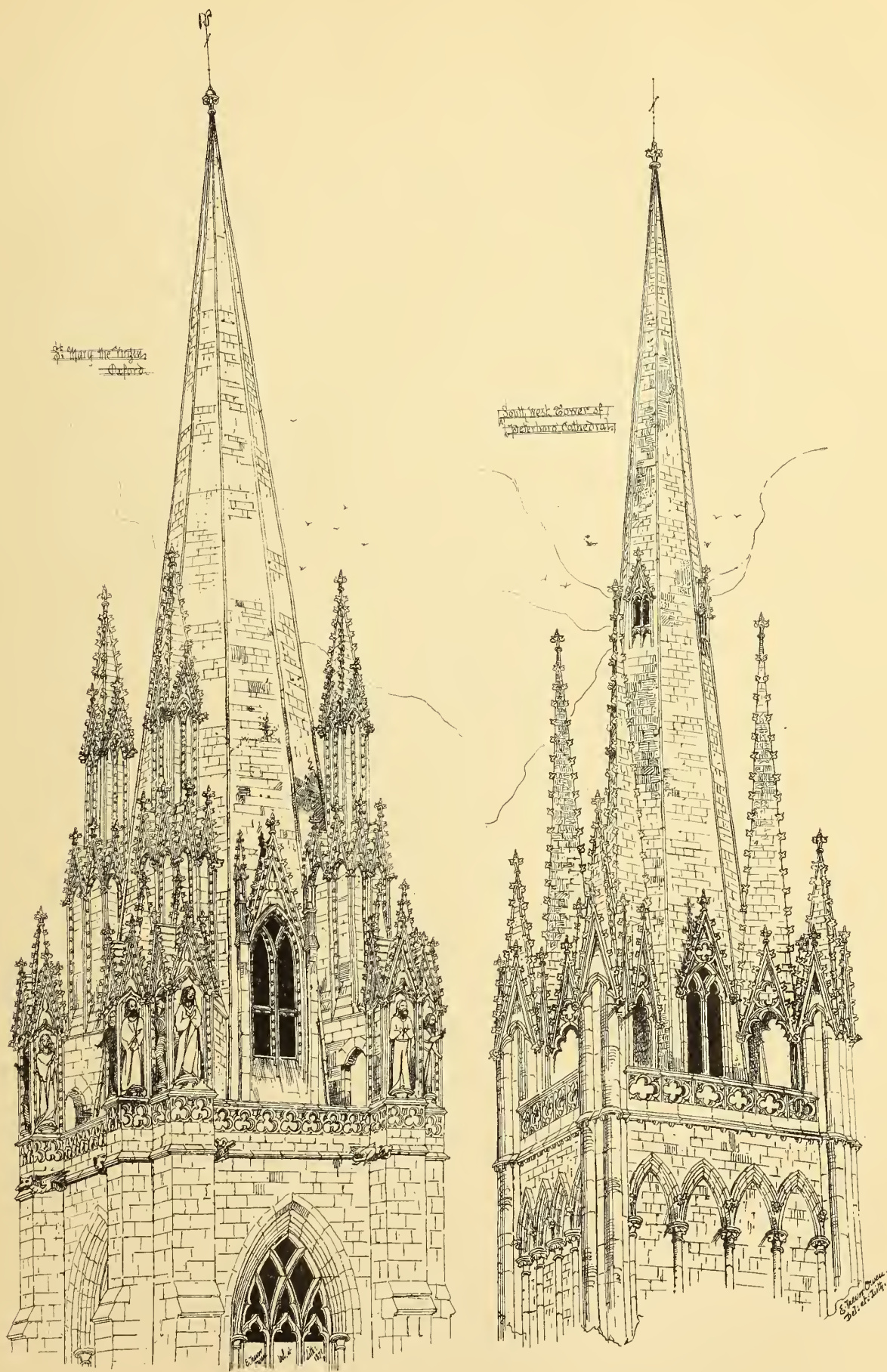
CHRIST CHURCH CATHEDRAL, AND THE SYNOD HALL.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I have read with much interest your able article in the number for the 1st inst. on Christ Church Cathedral, and the Synod Hall. Permit me to say that your statement of the dimensions of the latter is scarcely fair. The division-lobbies are so low as not in any way to interfere with the view; and, deducting these, the area of the hall is but 4,000 ft., or one-fourth that of the cathedral. This would accommodate 600; but Mr. Street's final instructions, given on the 31st ult., are, to provide for only 450; so that the area may be reduced by about one-fourth more—a very manageable size, and very nearly of the same relative area as the Durham dormitory. Your suggestion of an alternative site on the west side of St. Michael's-hill is a very valuable one, but the pecuniary difficulties are such as cannot be got over. To give one instance:—a property to the south-east of the cathedral, which was valued eight months ago at £1,600, is said now not to be obtainable for less than £12,000! This, of course, puts a stop to all improvements in the neighbourhood.

June 5, 1871. "PRO ÆDE CHRISTI."

[Our correspondent sees the division-lobbies as they are in Mr. Street's design.



Grouping of Buttresses and Pinnacles.

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If he had accustomed his eye to the elevation we gave, he would scarcely hold it to be unfair to include the division-lobbies in the area of the Synod Hall, for he would have known that the northern end of these features would be nearly as high as the aisles of the cathedral; and even if it were possible to build them as in Mr. Street's design, we should as little think of not using their area as we did, as of omitting the aisles from that of the cathedral. Our objections to the proposed use of this site are radical, and cannot be removed by any modification or curtailment of the Synod Hall buildings; but for the rest we have a "shrewd suspicion" that the area taken from the Synod Hall would have to be added to the scant area of the subsidiary buildings. But the pecuniary difficulty is, to our correspondent, a mountain, to remove which his faith is not equal. Let us examine it. Its highest point appears to our correspondent to be £12,000. Even so; supposing it to cost this sum, we repeat our question, "Will not the Church provide a thoroughly worthy site for the Synod Hall building?" Having said this, we would point out that the whole of the block for which this sum is asked would not be required to allow the Synod Hall to be erected to the east of the cathedral; and has our correspondent never heard of people asking more than they will take? But if the (so to speak) Down-easters are too hard to be dealt with, there is, as our correspondent allows, suitable land to the West, and Western men may be found a free-handed race; besides, there is a nice ancestral property (which as we may say is) in New Brunswick, it being at St. John's (Church): this only needs to be cleared and fenced to answer the purpose. A threat to withdraw to it would be certain to bring both Down-easters and Western men to reason. Our correspondent will understand us, and will, we hope, see that his mountain is but a molehill. But he may say, be it mountain, molehill, or hillock, there is a pecuniary obstacle to the adoption of the views of the article, and how is it to be removed? We would say by our correspondent and others following this advice—

"Let" them "then be up and doing,"
 With strong faith and clear—not misty,
 "Still achieving, still pursuing"
 What is good PRO-EDM CHRISTI.

—ED. I. B.]

THE MULLINGAR COMPETITION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having seen in the last number of the IRISH BUILDER a caustic paragraph or two from a disappointed competitor, animadverting, in language of very equivocal taste, on the course adopted by the "Episcopal Residence Building Committee," Mullingar, in rejecting all the plans, kindly permit me, through the same medium, to put the matter plainly and truly before the profession and the public.

The Committee invited architects to send in designs for building an episcopal residence at Mullingar—the expense not to exceed £2,500; that five per cent. on the outlay would be given to the author of the plan selected (of course reserving to themselves the right of accepting or not any of the plans, if not suitable); and a premium of £20 to the next best design. All information as to details, &c., to be had at Mullingar.

Some architects, when shown the requirements, declined to compete, deeming it not expedient on the terms—too much being re-

quired for the sum. Twenty-five others, wiser or more enterprising, did compete, and sent in designs—many of them of much professional merit. Some were far too expensive, and would cost double the sum named in the advertisement; and others, which came near the sum specified, were not at all suitable, not having the most essential of the requirements.

Every architect was free to compete or not, and, as a very gifted competitor observed, "did so at his own risk."

If the Committee were mistaken in requiring too much on the terms, surely the architects must blame themselves for having competed for what they must know was impossible; or, if they did not know, they must charge their failure to their own inexperience. Surely, no one will say, that the very best design ought to have been selected, if it would cost too much; nor could it be expected that a design, which could be built for the sum, if unsuited, should be selected.

Had the Committee selected one of the high-figure designs, those who kept within the sum specified could justly complain that they and the successful competitor did not compete on equal terms—a long range having been given him, while they were restricted to narrow limits; his taste and genius having full swing, while they were obliged to compress both. In the embarrassment what were the Committee to do? Surely not to select the high-figure plan, for the reasons alleged above, nor the ones which did not come up to the requirements. They reasoned also in this way: suppose none of the plans suited, could it be possible that any sane person would expect them to take the best of a number of plans, all of which were unfit for what was required, because twenty-five gentlemen thought, that "at least one of us has a right to be selected." They very properly deemed it unfair to the others to select one of the high-figure plans; nor could they accept the plans that would not answer. They were obliged, most reluctantly, and with pain, to reject all. The author of the best plan was asked to give a design similar to the one sent in, but cut down to the level of what could be expended on the new house. Then the premium of £20 will be given to the author of the plan, who, in the judgment of a distinguished architect, was nearest to the requirements and the sum named. Thus, two of the competitors will obtain all that the Committee could give, namely, the building to one, the premium to another. It may be said, why not ask the few best to compete again? It would be a loss of time. Every one had put forth his best effort. The Committee had sufficient evidence already, and the summer was passing, when the building should be going on. If the Committee must satisfy every disappointed competitor, they must erect twenty-four residences instead of one, and give £20 to the one remaining. The Committee had no object but to get a good plan, and give £20 as a premium to the other competitors. They would have been delighted to give the blue ribbon to the best; the stakes to the next, only so many were distanced or went the wrong side of the post.

A MEMBER OF THE COMMITTEE.

THE ROYAL IRISH ACADEMY.

A MEETING of the Academy was held on Monday evening. The chair was taken by

The Rev. Dr. JELLETT, President.

The minutes of last meeting were read, and new members elected.

Mr. G. J. Stoney read a paper on "Molecular Physics," and the results of inquiries in which he had, with Dr. Reynolds, for some time been engaged in reference to the nature of the absorption spectrum of chlorochromic anhydride, chiefly with the view of testing the truth of a theory which he had arrived at by other methods, and of which he proposed to give a brief account, namely—the interrupted spectra of gases, by refer-

ring them to molecular motions in the gas, produced by the collision of atoms next each other, seen when the flame was ultimately subdivided in the spectroscopic into a number of parts, each of which made a line in the spectroscopic. He therefore applied himself, he said, to verify by experiments the theory at which he had arrived, and by other reasoning, and the results obtained fully confirmed his views, for he found that in no case did the difference between the calculations and the experiments amount to one minute of an arc. This paper, as well as the others read during the evening were referred to council for publication.

Mr. W. K. Sullivan read a paper on "The Dolomite Bed of North Spain," in connexion with the Tithonic stage of Prof. Opel. The Professor set forth views long entertained by Professor Sullivan on the subject of the relations which subsist between the cretaceous and carboniferous systems of Asturia, and, in fact, on the whole line of the Mediterranean, and which they bore to the other and older formations, both in Southern and Northern Europe.

Dr. Sigerson read two papers on botanical subjects—one referring to certain anomalous forms of the corolla of Arica, and the other to additions which he had made to the "Flora" of the botanical district of Ireland known as No 10, in the arrangement laid down by Mr. Babbington in 1859, by which he divided all Ireland into twelve botanical districts, the one now referred to being chiefly confined to the County Tyrone. Each of these divisions was marked more or less by floral characteristics of which the others are destitute, and possessed plants which it was hitherto thought were not found in district No. 10, but which were by Dr. Sigerson discovered in many instances to exist there in considerable abundance. He had made out a catalogue of those additions, which he now submitted to the Academy.

Mr. Bryan O'Looney read a most interesting paper on certain errors which, during his collation of one of the oldest of the ancient Celtic manuscripts, he had discovered to exist. They consisted of departures from the proper forms by the omission of particles, and of letters from words; by the introduction of unnecessary particles, letters, and reduplicate forms; by the repetition of letters and words; by the substitution of one of these for another; and, finally, by obscure forms, which could only be restored by carefully following the present manuscript. In connexion with his paper, Mr. O'Looney laid on the table also a MS. translation of the entire Celtic MSS. referred to (the *Lebor na h-Uidhri*), for which the thanks of the meeting and the Academy were heartily awarded him. In reply to Sir W. Wilde, the speaker said he was unable to say whether the errors were provincialisms or inadvertent mistakes introduced by a mere copyist from an older MS., or whether they existed in the original documents.

Mr. W. M. Hennessy said that he had himself studied the MSS. very carefully, and made out an independent list of errors, which he would be glad to place at the disposal of Mr. O'Looney. These discoveries of errors were all the more important for the cause of linguistic research, because he was aware that on two words, which were accidental inaccuracies in a former work, an able scholar, who was not an Irishman, had built up an entirely erroneous philological theory.

It was agreed that the list of errors should be published, and slips supplied to each purchaser of the *Lebor*.

The thanks of the meeting were accorded to Dr. Charles Todd, for the presentation of Bedell's Irish Bible, which heretofore accompanied the shrine of St. Patrick, long buried in the earth, finally coming into possession of the Mulholland family, and recently purchased for £500 by the Academy from Dr. Todd, of Shane's Castle, County Antrim, the Government having refused to grant the necessary sum for the purpose. Dr. Todd now presented the Bible which had hitherto accompanied the shrine.

THE PATENT LAWS.*

EVERY year Parliament is invited, from different quarters, to relieve the country from the existing Patent Laws, and this session is no exception to the rule. There are three parties, broadly speaking, to the debate—those who would continue, those who would amend, and those who would abolish them. It is to the last idea, the advocate of which occupies his old ground with imperturbable tenacity, that we would chiefly advert, since the question is set down for early discussion, both as one of expediency and as one of justice. With respect to the first point, it is impossible to deny the existence of abuse and oppression; with regard to the second, it is a self-evident necessity; while, as for the third, it is the merest crotchet, but a crotchet which would work disastrously for every industrial interest in the country. Notwithstanding recent reforms, the costs are still monstrous; letters patent are granted without due investigation; the expense of maintaining a right infringed is beyond the power of all except the wealthy, and the issues are most uncertain; and, as a consequence, an immense proportion of preliminary registrations become void because the inventor cannot pay a tax which is without a parallel. But we have promised to deal, principally, with those who insist upon sweeping away patents altogether, yet who, with inexplicable inconsistency, stand by the principle of copy-right in art and literature. A book, a picture, or a statue, they argue, is designed to please the eye, or the ear, or the mind, sensuously and intellectually. It is not a thing to be employed and worked with, nor consumable, nor a mode, a process, an operation, or an implement. It is no interference with manufactures, mechanics, mining, farming, or shipping. It is a completed production; whereas the action of a patent is frequently impermanent; the privileges it confers lead to litigation; their infringement cannot be accurately measured, and their value is necessarily ephemeral. This, we venture to say, is, in brief, a fair description of the position taken up by those who would repeal, altogether, these protecting laws, substituting nothing whatever in their place. The author or the artist has a property concerning which there can be no mistake; but a mechanical patent may be as complex as the machine it refers to, and its invention should be as free as the wind to all the world—which means, if anything, that you shall not reprint a volume or copy a photograph without licence, but that if your neighbour improves, after long thought, the printing and photographic processes, you may profit by his discoveries, from the moment they are announced, without offering him a tithe of reward. The doctrine appears monstrous, yet it has many supporters, both in and out of the Legislature. Now, what is the difference between “ideas” in a new book and “ideas” in a new apparatus, supposing both to be equally original? Have not both been the results of study, both worked out by the brain, both developed at the cost of much time and anxiety? Is not an author, especially a poet or romancer, an inventor; and is not an inventor, in precisely the same degree, an author? The genius of the individuals has only assumed different forms, and is not the labourer worthy of his hire in either case? It is the labour of the lapidary which gives value to a pebble. This brings on, no doubt, the question of natural rights. With reference to inventors, it is urged that they have only two, which may be enjoyed without letters patent—those of using and those of concealing their own inventions—limitations implying this, that years of toil are to be rewarded within the narrowest personal limits, since a man, to keep his secret, must not trust it to many; and that whenever a traitor divulges, or a spy—of the magpie race—succeeds in detecting it, its value is gone. For how could it be hoped that, in an extensive factory, a mystery should long be kept up with regard to the processes going forward? Besides, it

does not follow that because a man contrives in part, or in the whole, a new cotton-machine he should possess either the capital or the peculiar talent necessary to conduct a cotton-mill. A first-rate mechanic might be a totally unqualified manufacturer, therefore the work of his mind would be still-born; he could not sell it, for none would buy a monopoly not worth a day's purchase. As to the natural rights spoken of, they are figments. We, all of us, claim a good many rights not represented by material possessions; as of ancient lights, free footways, immunity from trespass, protection against nuisances, and so forth. When these economists come next before Parliament, as they are threatening to do in a few days, let them follow Lord Mansfield's advice, and state their proposals without giving their reasons. Even the French Revolutions of the last century never went so far.

No one asks for perpetual patents, and many condemn the policy of renewing them after the term of the original grant has expired. But, upon the whole, it must be conceded, though it is often denied, that inventors have been a hardly-used class of men. The answer is that they have been so privileged as to become an industrial aristocracy. Now, it cannot be denied that there are plenty of dreamers, who fancy they have made great discoveries, who admire new mechanisms and methods until they imagine them their own, who are for ever sitting at the gates of Government with extraordinary schemes, requiring exorbitant sums for their fulfilment, and who, when repulsed, ascend upon the house-tops and proclaim themselves martyrs, because they are not paid for doing that which in the nature of things cannot be done. This has nothing to do with the principle of a Patent Law. There are others who devote themselves to fantastic trifles, and complain bitterly when the public do not appreciate them. Such are the curiously ingenious people whose novelties we find on one of the older Patent rolls; anti-emergent rat-traps, apparatus for securing corks in bottles, anti-splashing boots, improved epithems, collapsible tubes for sauces, and hotel cunciators. Observe, however, how not a few of the contrivances then ridiculed have grown into realities. The new fastening for shutters is in general use; the sewing-machine is the “improvement in stitching,” then vaguely suggested; the preservation of fruit, vegetables, and meat is now an important branch of commerce; and the “enunciator,” so laughed about at first, has been fitted to a hundred hotels. Even where it is not so, the principle of a Patent Law would not be touched. The principle is to reward a man for designing something manifestly useful to his fellows, and to encourage others to emulate him. It is very easy to say that this is pampering his selfishness. Why, upon that plea, all industry, intellectual or manual, is selfish, but the public is selfish also. When a discovery is made, it desires to have it described by the person who can describe it best, and surely the advantage should be reciprocal. Supposing, however, having no property in his idea, but manufacturing, say a new engine on his own works, he sold them under guarantees from his customers that they should be employed behind a veil. Would the guarantees stand for a day, and would not a system of espionage hateful to Englishmen be established?

The objection that the hope of obtaining a patent takes a man away from his regular business, frets him, and causes him disappointment, is hardly worth considering. That is the man's own affair exclusively. Nor do we lay much stress upon the proposal to substitute State grants for patents. The principle had a long trial, and utterly failed. For sixty years Parliament voted money to inventors in large sums, which were often wasted. The virtue of an exclusive right conceded to an inventor consists in the fact that its commercial depends upon its practical value. Who would dream, in our days, of giving an importunate old woman £5,000 of the public money—worth nearly £10,000 now

—for a set of quack medicines, made up of calcined snails, burdock seeds, soap, and swine's cresses? Yet this was actually done in 1740. The cases of Jenner, Cartwright, and Crompton were exceptional; the first never contemplated turning his discovery to pecuniary account; the latter two were not, in point of fact, rewarded; they were merely reimbursed in about a third of the fortune they had sunk in their great inventions. The late Mr. Muntz paid £8,400 for inventing a yellow-metal ship sheathing. But, advancing to another point, it is said that a patent is a monopoly, and therefore contrary to the policy of the law. The term monopoly, however, while convenient on occasion, is substantially inapplicable. The playing-cards and salt monopolies of former days, commanding the markets and arbitrarily raising prices, had nothing in the nature of patents, which are plainly competitions, with adopted systems and established manufactures. When Watt thought of the steam-engine, there was another steam-engine in the field, upon which he felt convinced he could improve. There was a hard struggle to go through, before he could even be heard. There was another before he could obtain a trial. All the old inventors and their patrons rose against him. But he persevered, at incredible sacrifices, and succeeded. Even then he had to create the demand which was to recompense him. Are we to be told that, while his inventions enriched entire districts, he alone should have been no gainer; but should have been left in poverty to see his work fructifying in other hands? And here another point arises. Whatever be the profits of the patentee, the public is no loser; it pays no tax; even rival inventors are benefited. For an invention does not spring into perfectness all at once; and every detail of improvement may become the subject of a super-added though not hostile patent. It was Patent Law that gave us steam machinery for manufactures, locomotion, and agriculture, and compressed a century of progress into a decade. Referring to the objection that two individuals may be evolving the same idea, while the quickest to act may secure the entire advantage, we think it disposed of by the story about Columbus and the egg. When a man says “I could have done that five minutes later,” the hard-hearted answer must be “Your rival did it five minutes sooner, has won the race, and by all codes of justice is entitled to the prize.” The object of the inventor is to get his patent so soon as possible. Without it what would he do? Probably bury his secret. Or, he might offer it to a capitalist who, naturally, would not buy a mystery without its explanation, thus commanding it, if he were so disposed, without paying a penny for the knowledge.

The equity of the Patent principle is acknowledged by every country in the civilised world, Switzerland excepted, and Switzerland is destitute of inventors. It has been, is, and seems likely for ever to be, a region of wooden cottages, milking-pails, spoons, and churns. All other nations have adopted the principle but Great Britain imposes the heaviest tax, resembling, in this respect, Spain. We, up to a recent date, charged the inventor £175 in direct payment, for the recognition of a simple right, not to speak of collateral charges; and the explanation is that there must be so many stamps, filings, references, advertisements, and so forth, for the fattening of lazy departments. Why, when the Patent Law Bills set down for this session come on for debate the English inventor should remember that, were he a Prussian, he could secure his letters patent in full for fifteen years by a payment of £175?—£125?—£80?—£79?—even £12?—no; but of 1s. 6d. And this is what we desire to see established as the English scale. Each government attaches different conditions, more or less onerous, to its grants; but, as we are keeping a single point in view, at present they need not be discussed. Why should letters patent be costly? It almost seems as though a prohibitive or protective duty were laid upon new discoveries. Without impugning the intellect of the rich, it

* From the *Building News*.

may fairly be said that the majority of inventors are comparatively poor. Perhaps the very pursuit of novelty keeps them so. They may reside in remote parts of the country, and must visit London to justify their specifications; when there, they may have to encounter a fierce and costly litigation, as did Heath, the steel manufacturer, who got £10,000 for his patent after spending £15,000—not his own money—in defending it. Upon his paraffin inventions Young laid out £40,000 in law costs. This is partly because questions which juries are totally unfit to decide are referred to our venerable palladium. There was a very plain-spoken jury, not long ago, which, after trying for several days a question of infringement concerning a delicate process of electricity, declared itself bewildered, refused to sit any longer, and broke up in defiance of penalties. There is thus a fine levied upon the inventor's genius, contrary to the maxim that he who sows should reap. As if the harvests of the year should be sown by farmers and reaped by gleaners! It is a fallacy to say that an idea costs nothing, though it may effect, may produce millions. No invention can be put to any practical use without a serious amount of expenditure. Money must be sacrificed, not less than time, models made, experiments conducted, and publicity obtained. All these elements of the question should be taken into account, frequently as they are forgotten. But the primary principle of a patent law is that it defends a man's property. The public, however, are not less interested than the patentee. Rapid as have been the improvements in arts, sciences, manufactures, and general industry within the last thirty years, what would they have been without inventions, and where would have been the inventors without a hope to lure them on? We do not even hear of races run by "gentlemen riders" without a prize at the end of them. From the grand rush over the Derby turf to the village fair at which a rustic climbs a pole to claim a leg of pork, reward is expected. Well, patents are simply protections against dishonest appropriation, and all the world is interested in them. We cross the seas in vessels with patent screws, turned by patent engines; we traverse the land whirled along by patent locomotives, and made safe by patent signals and breaks; we whisper to the far East and West of the globe through patent telegraphs; we ride in patent vehicles; clothe ourselves from patent looms; warm ourselves by patent stoves; light our rooms with patent lamps; and shall we begrudge justice to the patentee? On the contrary, if he has really invented nothing he will do good neither to us nor to himself; if he has worked for years, and reached an useful result at last, let him gather the fruit which his hands have planted, without being mulcted for his sacrifices and services. An age which has abolished the taxes on knowledge ought surely to abolish the taxes on invention.

PROPOSED ADVANCE OF WAGES.

A SPECIAL meeting of the Regular Body of Carpenters took place at the Carpenters' Hall, Lr. Gloucester-street, on the evening of the 8th inst., to deliberate on the advisability of demanding an advance of wages. The meeting, which was convened by circular, was called to order by the chairman, Mr. Battersby at eight o'clock. After reading the circular served upon the members requesting their attendance,

Mr. Thomas Atkinson rose and said that, as the subject which they were called upon to discuss was one of great importance to the interests of the trade, he hoped that fair play and a patient hearing would be given to every man who wished to address the meeting. For his own part he would say but a few words. As a body of working men, the carpenters of Dublin were the first in the land; and as skilled artizans, were second to no other society in the empire. He contrasted their present position with that of other trades, and glancing at the mental requirements which were expected from them by the

exigencies of their calling—the social position which, on account of their intelligence, they ought to occupy; the present dearthness of the provision market; the difficulty of keeping up a proper supply of tools; and many other calls which they had to contend with, and which other branches of the building trade were strangers to, such as books to study, practical geometry, &c.,—he could see no unfairness in demanding an advance in their pay. He would support a motion to that effect, and again begged of the members to be orderly, and in a calm and dignified manner express their opinions, and, above all, to give every member a fair chance of giving vent to his ideas.

Mr. Moore said that his foreman had already waited upon Mr. Martin respecting the advance, and that gentleman not only promised to give it, but expressed his surprise that they did not demand it long before (cheers).

Mr. Nolan (who, notwithstanding Mr. Atkinson's appeal for fair play, was very impatiently listened to) was understood to dissent from making any demand at present, inasmuch as their funds were very low, and not much prospect of a good season's work. These remarks created a general commotion and a somewhat noisy discussion between man and man, amidst which there were loud cries of "chair, chair," and "hear Mr. Nolan." The speaker was proceeding to give reasons for his dissent, but was again interrupted by several voices calling for Mr. Gaffney. The tumult having subsided, several speakers rose together, and advanced opinions which were difficult to catch, as each held forth at the same time. The cry for Mr. Gaffney being repeated, he was about to respond, when the chairman announced Mr. McDonald's address—the secretary's address.

Mr. McDonald then proceeded to read his address, but owing to the imperfect accommodation respecting seats, the manner in which the members crowded round the council table preventing those behind backs from getting a glimpse of the reader, and the constant passing, repassing, and stretching of necks of restless men over one's shoulder on the outer side of the ring, our readers will have to be content with the substance of the manuscript. It seemed to have been written by a person used to composition, but arranged to convey the ideas of an inferior mind. It had, as far as one could judge by the expression of many of the faces of the audience, a great effect upon their understanding; but this was, perhaps, owing more to a respect for the language than the sense it contained, since it was mostly made up of

"Words of learned length and thundering sound,"

which, to the majority of those present, were sounds and nothing more. The preface was merely a repetition of Mr. Atkinson's remarks, concerning position, the price of provisions, &c. Then followed a good deal of flattering expressions that puffed up the members to a state of self-importance, which is a prevailing characteristic amongst the Dublin carpenters. Intermingled with these could be discerned a subtle kind of reasoning, manufactured solely to suit the prejudices of the unread, and which only a knowing hand knows how to disseminate. There were some passages expressive of the manner in which employers took advantage of the working man, and ground him to the dust, which drew forth loud cheers, and nothing gave numbers of them so much pleasure as the idea of making the demand at a moment's notice.

Mr. McDonald's address having concluded, Mr. Gaffney rose after a good deal of pressing, and proposed a resolution to the effect that notice should be forthwith given to the employers demanding sixpence a-day advance on their present rate of wages, to commence upon the 1st of July. This was seconded amid loud cries of "a week's notice" and "put the resolution from the chair." An amendment, however, was put forward by Mr. Dooner, to the effect that it was injudicious and unwise to seek an advance of wages without giving three months' notice to the employers. The uproar with which this proposition was received was truly characteristic

of the "first body of men in the land." For several minutes the speaker could not be heard, and whenever he made an attempt to speak, general interruption was the order of the day. What! give employers three months' notice, that they might have time to organize a successful opposition against them—the thing was absurd.

Amidst the now excited and disorderly conduct of the "most intelligent body of mechanics," with great difficulty could be heard the words of Mr. Dooner, as he stood craving for fair play. He thought it unfair to take employers so short, and was answered by shouts of "they'd take us short," and "put the resolution." The speaker, however, would not waive his right to a hearing, and great, apparently, was the wrath of his mates in consequence. He advocated a three months' notice, on the grounds that it would give time to discuss the matter through the Press and otherwise, and that a short notice was the principal objection generally put forward by employers to acceding to the demands of their men.

Mr. M'Cormack, interrupting, said the Press never done anything for the working man. If writers were paid, he said—if they were supported well they might do something, not otherwise; and as for the notice to employers it was short the last strike, and it would be short now.

Mr. Pemberton came forward to second the amendment, and in doing so, pointed out the hardship and the loss it would occasion small employers to be obliged to give an advance of wages before they had time to wind up their present contracts. "The first body of men in the land" would not listen to Mr. Pemberton either, so the amendment was put and lost. The resolution was then put and carried, after which the room was half empty in the space of a few minutes.

After the appointment of a committee of four to be designated a "strike committee," the meeting adjourned.

THE TWO HISTORIC RAVENS OF DUBLIN.

DURING a residence of some years in Dublin I remember a pair of remarkable ravens, belonging to a saddler or harnessmaker in a fashionable street in that city. From dewy morn until dusky eve these birds were seldom from off the pavement in the street before the tradesman's shop. How they escaped injury from the vehicles in the thoroughfare, I know not, for I often saw them straight abreast several cars and carriages moving at a rapid pace, but a well-timed hop placed them alongside or under the body of these moving vehicles. They were never molested by man or child. Their principal labours were confined to the side channels of the streets, or in digging down the delta that got choked up between the grating of some of the sewers; in fact, these pair of venerable ravens were gutter commissioners, and they performed not a little useful scavenging, neglected by the corporate authorities of Dublin. The rags and loose pebbles, and other waifs and strays that got drifted into the side channels for several yards up and down the street, were carefully picked up by these sanitary birds and carried off, and plugged into some hole, and plastered up with the road gutter. A shirt stud, a brass button, or a pin was secreted in like manner. They did not care to touch any food that was flung to them by strangers—a piece of bread or biscuit, if thrown, was not eaten, but removed as *débris*. I never ascertained the age of these venerable ravens, though I, probably, looked upon them a hundred times. They were of large size, and though they attracted strangers to stop and admire their stately stride up and down the roadway, they did not allow themselves to be tricked into too close a familiarity. Whether their owner or his family, after their death, had them stuffed, I know not; but I know that they deserved a place in the glass-case of the Dublin Museum.—From *Notes on Birds and other Notes*, by Clinton Hoey, in "Land and Water," of June 10th.

DROGHEDA.

Mr. J. J. F. Greene, C.E., A.B., T.C.D., having been selected by the Corporation of Drogheda to fill the office of surveyor and engineer to the borough, at a salary of £50 per annum, his Excellency the Lord Lieutenant has approved of the appointment. It is understood that the above liberal (?) salary will be supplemented by the emoluments derived from the office of "sword-bearer" to the Corporation of this ancient town.

The subject of defective drainage in the town was brought before the Corporation on Monday by Mr. R. B. Daly, whose remarks we quote from the *Conservative*—

I gave notice of motion for to-day with reference to the drainage from certain houses. We all know that it is very essential the lodging-houses should be kept in good condition, and that duty, I am glad to say, has been well attended to by Mr. Levins. I am very glad to hear that report from Dr. Kelly; it shows the medical men also are paying attention to a very important subject—the sanitary state of the town. Now, in Drogheda there is a class of houses to which I want to draw your particular attention—blocks of houses in which rooms are let to families, which in many instances are notoriously overcrowded, and in which no provision is made by which cleanliness is possible. I have it from the medical men of the town

—Dr. Kelly among others—that it is in this class of houses disease principally originates. It is impossible for the authorities, let the Mayor of the town be ever so zealous, to remedy the evils complained of so long as no provision is made for carrying off the offal and filth from these houses. On looking over the Towns' Improvement Act, I find that there is ample provision made in it for dealing with cases of this kind. For the short time the Council is here, it would not be fair for me to ask you to read the Act of Parliament; but, having read it myself, I may state this fact—that if there is a house in the town which has not a proper sewer it is because the governing body of the town neglects to put the Act in force. Now that Mr. Greene has been appointed—a young man full of energy, that understands his business well—it will be greatly to his credit if he takes this Act in hand; and I think I may say that he will get every support from the Council and the magistrates if he takes it in hand and, without fear, favour, or affection, puts it in force. With regard to the sewers—where any house, within 100 feet of a main sewer, is unprovided with a tributary sewer, your engineer has power to construct such a sewer at the expense of the Corporation, and he can get the expense recouped before the magistrates in petty sessions. In some cases I am aware there are difficulties about the level. In Fair-street for instance, the sewer made there at an expense of £100 is too high, and it won't carry off the sewage. The first thing Mr. Greene should do is to provide himself with a map of the town. For a couple of shillings he can get the Ordnance map, and may enlarge it to any size he likes, and then lay down the sewers and their levels; and if he summons any parties before the magistrates, all they will ask him to do is to show that the level is right, and that the main sewer is within 100 feet of the houses complained of. No mistake about it, we have to deal with probably the oldest town in Ireland, and the most difficult to manage in this respect; but the difficulty of the subject is no reason why it should not be grappled with. My notice of motion had reference principally to that matter of the sewerage; but I have altered it a little to show Mr. Greene what the Mayor and Corporation expect from him, and that if he takes this Act of Parliament in his hand, acquaints himself with its provisions, and carries them out strictly, he will be supported in doing so by the Mayor and the Council.

L A W.

COURT OF EXCHEQUER CHAMBER—June 3.
(Before the Lord Chief Justice, the Lord Chief Baron, Mr. Justice O'Brien, Mr. Baron Fitzgerald, Mr. Baron Deasy, and Mr. Justice George.)

Taylor v. Hall.—This case came before the court on an appeal from the decision of the Court of Common Pleas, disallowing cause shown by plaintiff against making absolute a conditional order directing that the verdict had for him should be set aside, and that a verdict should be entered up for defendant, on the grounds of misdirection on the part of the learned Chief Justice, and that the verdict was against evidence and the weight of evidence. The action was brought for the recovery of a sum of £45 for building surveyor's fees from defendant, who is a builder, employed in the erection of a house

in the vicinity of Dublin, on which plaintiff was engaged as surveyor. At the trial it was alleged that defendant did not use the estimates furnished by plaintiff, and that, according to the usage in the trade, he was not liable. The jury found for plaintiff, leave being reserved to defendant to move that the verdict should be entered up for him, on certain legal points reserved. The case was fully argued on appeal to the Exchequer Chamber last Term.

The Court now, by a majority, reversed the decision of the Court of Common Pleas, and upheld the verdict had for plaintiff.

Counsel for plaintiff—Messrs. Falkiner, Q.C., and Boyd, LL.D., instructed by Messrs. Macroby and Co. Counsel for defendant—Messrs. Heron, Q.C., M.P., and Carton, instructed by Mr. W. J. Stuart.

MISCELLANEOUS.

THE WELLINGTON MONUMENT.—A return to an Order of the House of Commons for a copy of a Treasury Minute on the completion of the Wellington monument has been published. This document states the proposed cost of and conditions for the execution of this monument, likewise the conclusion of Mr. Stevens's contract; also the steps taken by Mr. Ayrton to procure a substitute for Mr. Stevens. Regret is expressed that Mr. Ayrton should not have complied with the request conveyed to him in their (the Lords of the Treasury) letter of the 25th July last. Their lordships further inform him that they adhere "to the opinion they then expressed, that the most prudent course would be to consult and to be guided by the opinion of some one person competent to advise in such a matter, and in whose judgment the public would have confidence," and they add that they greatly doubted "the expediency of again having recourse to the very system (which Mr. Ayrton had signally failed in attempting) which had resulted in so conspicuous a failure," and that "nothing is so likely to discredit the principle of competition as forcing it into all kinds of subjects without reference to their fitness"; and, finally, they state their belief that "Government would discharge its duty more satisfactorily by entrusting the execution of the work to some well-known artist, than in inviting a competition, reserving to the Government the task, for which they are ill qualified, of deciding between competitors on matters of taste and technical knowledge." To this excellent counsel, which, we trust, will be acted on in like cases the First Commissioner replies—showing that he does not appreciate their lordships' meaning—that it would, no doubt, be practicable to request only one sculptor to submit a sketch for approval, and, if that were not approved, to invite another, and so on; but that, knowing there were "very conflicting opinions on the subject, it appears to me necessary to compare them (? the conflicting opinions) by the proposed standard of drawings," &c., "with an estimate of cost, without which I am unable to judge whom it would be desirable to employ." Mr. Ayrton adds, that the failure in question does not appear to him to result from a competition having been adopted in awarding the commission, "but from the First Commissioner (one of his forerunners in office) not having been guided by the results of the competition in the selection of a competent sculptor." Few artists who know the history of the case will accept this opinion. There never was any doubt about the wisdom of appointing Mr. Stevens, notwithstanding that in the competition he was not first. If anything has been proved in the matter, it is the great artistic ability of Mr. Stevens. Finding that Mr. Ayrton declined to act on the prompting of the Treasury, Mr. Gladstone, in effect superseded him on this point, and consulted Mr. J. Fergusson. Thus, and by means of independent inquiry, it was decided that no artist of celebrity would undertake to finish a work designed, and so far executed, by another hand; that if such a one appeared, he could not be expected to complete the monument with the same harmony and perfection of execution as its original designer; that, as the case stood, it was proposed that Mr. Stevens should finish his own work under sufficient and independent guarantee. This guarantee was procured, by means of Mr. Fergusson, from Mr. L. W. Collmann, a friend of the sculptor, who undertook that the task should be completed in two-and-a-half years, for a total sum not exceeding £9,000, of which £1,000, will be paid on the execution of the agreement, and the remainder by instalments. The total cost of the monument will therefore be £28,000. "It is evident," continues the Minute, "that in undertaking to execute his portion of the work for £14,000, Mr. Stevens considerably under-estimated the expense which he must incur; and it is to this error, and the embarrassment thereby caused to him, that the delay which has taken place must, in a great measure, be attributed."—*Athenæum*.

INLAND REVENUE.—The new regulations for the open competitive examination for the situation of assistants of Excise in the department of Inland Revenue have been issued. Candidates will be required to satisfy the Civil Service Commissioners that they are natural-born subjects of the Queen, between the ages of nineteen and twenty-two on the day of examination, unmarried, without family, and of good health and character. Candidates who have served as pupil teachers or schoolmasters in schools under inspection by the Committee of Council on Education in England, or by the Commissioners of National Education in Ireland, will be reported specially, and such of them as have been trained in normal schools at the public expense will not be qualified to receive appointments until the consent of the departments and the concurrence of the Treasury therein have been notified to the Civil Service Commissioners. The examination will be in the following subjects:—Hand-writing, 200 marks; orthography, 200; arithmetic (to vulgar and decimal fractions) 300; English composition, 200. Candidates failing in any of the above-named subjects will not be eligible. A fee of £1 will be required from each candidate attending the examination. An open competition will be held in London, Edinburgh, Dublin, Cork, Galway, and Belfast, under the above regulations, on Friday, 23rd June, 1871. Sixty persons will be selected, if so many should be found qualified, with the view of filling the sixty vacancies which are expected to occur before the 31st October next. Any person wishing to be admitted to the examination must fill up a prescribed form. An order for examination will then be sent to him in due course. Second-class assistants of Excise receive a salary of £60 per annum, with an additional allowance of 2s. per diem when actively employed; and they are eligible for promotion to higher situations.

The *Iron Age*, U.S., gives an interesting account of the gas-wells of Erie. The average depth of the wells sunk is 600 feet, and they yield from 10,000 to 30,000 cubic feet of gas a day. In the manufactories of the city this natural gas is burnt without any other fuel for raising steam, and in many private houses no other fire is employed. The City of Erie Gas Company have a well pouring 42,000 cubic feet of gas a day into their gas-holder; this, mixed with 12,000 feet of ordinary coal-gas, furnishes the supply for illuminating the town.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homœopathic Chemists, London. Also, makers of Epps's Cocoa, a very thin beverage for evening use.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

The *Art Journal* for August, speaking of Benson's Watches in the Exhibition, says:—"We have selected for engraving three of the watch-cases, of which a large variety is exhibited by Mr. J. W. Benson, of Ludgate-hill, in the large and prominent tent contains his Monster Clock. To this department of art-manufacture Mr. Benson has paid especial attention." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's Illustrated Pamphlet on watches, clocks, jewellery, chains, &c. (free by post for two stamps), contains a short history of watchmaking, with descriptions and prices. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post.—J. W. Benson, Prize Medallist, Ludgate-hill and Old Bond-street, London. Established 1749.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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The Irish Builder.

VOL. XIII.—No. 277.

Obstacles to Irish Art and Trade.

LET the naked truth be told, and if there be a devil or devils dwelling in our midst, let them be shamed. Better by far that we should tell our faults and shortcomings in this island, than be obliged to listen to them at the hands of others. Our actions belie our boasts too often, and we pretend to be very often what we are not. Our representatives and professional men are not doing their duty. Our public instructors talk of duty, and shrink it; and our workmen talk of the tyranny of capital, forgetting that their own tyrannous conduct is productive of the spirit of tyranny of which they complain. Come, *messieurs* and *ouvriers*, make an open confession of it, and when you see yourselves as others are forced to see you, things will look a little more reasonable to all of us. We have a Press in this country woefully remiss, and the Press existing in this capital—which prides itself on being liberal in all senses, besides being political—is a selfishly illiberal Press indeed. Candidly and honestly we declare it, with no oblique *animus* or amateur pen, and we would willingly make a sacrifice of time and labour to help in shifting matters into their right groove. Ours, though an architectural and sanitary mission, yet in all that conduces to the common weal we have an interest.

Native genius languishes in rags; native talent starves and withers on the soil; native honour is outraged and ostracised; and native ways and means coldly neglected, because the artist and workman, or the poor professional, is too poor to know anybody. Being poor, he has no patron; being in lodgings, he has no visitors; having no porch to his hall-door, or brass-plate on its lock-rail, ladies and gentlemen give no "morning call," and his "orders" come more often in consequence in shape of notices to quit than glad tidings of work. There is a mildew upon almost everything in this unfortunate city, and how can it be otherwise? City council and city merchant, country squire and diocesan prelate, and all others who raise their funds at home, are always at their wits' ends in devising the best way of getting rid of it abroad, or in some way whereby "our foreign relations," to use a political expression, "may be maintained." We verily believe that if churches and chapels, barracks, prisons, poorhouses, and gentlemen's mansions could be manufactured abroad, like German toys and Geneva watches, they would be imported, and that we would find portions of the Irish Press loud in commendation of our acquisition of a new branch of trade. Nay, we have little doubt but that we would be told that these portable family mansions would work an entire revolution in the building trade of Ireland, and would considerably add to the saving of the cost of building. Other pens besides ours have rebelled, other voices besides ours have been raised a quarter of a century ago and upwards against the damning scandal then existing, and now existing, which paralyses

and murders art and trade in Ireland, but the scandal still lives. When the Davis Testimonial was first projected, Hogan, our great sculptor, we believe was not then in Ireland, but at Rome, but there were some other native artists in our midst, and some of them are still alive, who could undertake any necessary statuary work. We had some corporate officials then and illiberal journalists who were not ashamed to say that they believed that no work of real fine art could be executed in this city. This scandal, however, was refuted by architects, artists, and sculptors of eminence, and also by Members of the Royal Irish Academy as well as the Hibernian. Among these were the late Sir Richard Morrison, architect; George Petrie, the antiquarian; the brothers Kirk, sculptors; Stewart Blacker, and we believe, if our memory serves us aright, both the brothers Farrell and Smith, sculptors, testified to the capacity of native talent then in Ireland capable of executing any work of art. Who knows how soon history will repeat itself, if it be not at this moment doing so. There are people in this city who have to do with the public money, who would vote it away to some artist in Yokohama or juggler in Shanghai with greater confidence in either of their merits for executing an Irish testimonial, than the best of his own countrymen.

When Francis Johnston founded an Irish Academy for Painting, Sculpture, and Architecture, he did a noble work, not only as an architect, but as a citizen and a man. How many in the guild of his profession since have followed in his footsteps, and have earnestly tried to keep alive and intact the institution into which he breathed the breath of his nostrils, the love of his heart, and the ebbing fire of his soul? How many? Architects, painters, and sculptors of Ireland, speak. Alas! there is a cold damp sweat upon many of your foreheads; some of you are dead to the world, if not dead to nature; some more of you are struggling with hope and despair, and one or two of you have riven the chain that bound you, and have escaped to other lands with sufficient youth and life to recuperate yourselves.

Nobility of Ireland! those of you who are noblemen, and are ennobled by your moral attributes, is your country to be only a hunting, fishing, and shooting ground to you? Gentry of Ireland! those of you of good breeding and gentle manner, is the capital to be only a place for your occasional visit? Are levees and drawingrooms, and a box at the opera in season to be the alpha and omega of your patronage to Dublin? Merchants and employers of Dublin! you who are still making a little money, and who are complaining hard of the poor-rates; workmen of Dublin, half employed throughout the year, and yet talking of going to "strike" during the other half—listen. A serious semi-madness seems to have stricken you all alike, noble, gentle, and simple, and with destruction in your front, and ruin in your rear, you all seem to be rushing from one plague to embrace another. Be wise and take counsel together. Employment is a blessed word; work means salvation, and industry means reward. Idleness can only result in a dead-lock to all, and all that tends to such a climax should meet with the severest censure. Irish society can never be placed on a firm and lasting basis until there exists more confidence between each class in Ireland. The narrow and exclusive spirit that vegetates in Ireland at this hour would

kill the noblest cause that ever enlisted the sympathies of mankind. Unfortunately religion and politics, with which we have little to do, is allowed to interfere too much with worldly business matters, and the Press, which should be a guide, adds its weight indirectly if not directly in assisting the evil to live. Politics or religion should have nothing to do with promotion or employment; but in Ireland it ever appears to have something to do with it. Men in the country, artists and workmen are judged by their politics, not their handiwork, and their services accepted or ignored accordingly. Sometime even their religion is made a cause for objection, and if these should be passed over, the poverty or straitened means of the applicant or candidate form a reason for a decline of services. At such conduct it is not difficult to surmise what is often expressed by the disappointed, or that a curse should escape human lips. Talent and genius in London is not hemmed in such narrow and exclusive guages. If one avenue has exclusive points, there are hundreds of others that have not, and talent with energy will ultimately work its way, and meet with encouragement and recognition on all sides.

To sum up. Irish workmen are no better than those of England or Scotland; but perhaps inferior to them in some things, but we contend at the same time that as mechanics in the different branches of their existing trade, Irish workmen are fully equal to those in the sister countries. Irish industrial resources need only but development to produce hands and heads equal to any emergency. The last century proved it in various ways. So long as men are led by fashion and misled by prejudice and false statements, so long must nature, trade, and industry languish, and so long as the selfish and exclusive spirit which we have shown exists in various ways in our midst, Irish progress must be slow.

We repeat once more that the professional and representative men of Ireland are not doing their duty; the nobility and gentry are not doing their duty; neither are the clergy or journalists rendering the required assistance to the trade and manufactures of the nation. Declamation, rhetoric, or fine writing, on platform or in newspaper, on the split of political parties, or the defeat of this local measure or that, will not lift up the manufactures of Ireland or give her artisans work. Political sinuosities is a bad study for an industrious workman. The elements of Euclid, and work all the year round, would add more to his comfort and knowledge than an acquaintance with all the political nostrums by which Ireland was drugged to death and delusion during the last half century.

Our remarks may be unpalatable to some—facts generally are,—but, feeling there existed a necessity for uttering them, we place them before the Irish public. We yield to no one in our desire to see all classes of our countrymen united, and of seeing her architects, artists, builders, and craftsmen once more building up the shattered fabric of a great commercial and manufacturing nation.

DUBLINIENSIS.

SCIENTIFIC LECTURES.—Professor Thisselton Dyer delivered on the 19th ult., the fifth of a series of popular lectures on "The Natural History of a Flowering Plant," in the Theatre of the College of Science, Stephen's-green. The lecturer devoted his attention in this discourse to the fruit of the flowering plants, and treated the subject in an able, interesting, and attractive manner.

THE GRATTAN STATUE.

THE hon. member for Meath (an advocate for "Home" Government) addressed, a few days ago, a timely letter to the *Freeman's Journal*, calling attention to the want of energy displayed by the committee appointed two years ago to carry out the wishes of the subscribers to the monument to that highly distinguished Irishman, Henry Grattan. In another column we have expressed our views on Irish art, and referred particularly to sculptor's works, to which we would beg our readers' notice. It is hoped that Mr. Martin's letter will have a salutary effect in stirring up the sleeping committee. He says:—

It is more than two years since a number of patriotic Irishmen, moved by the munificent example of Mr. A. M. Sullivan, contributed the amount of money required for procuring and setting up in the metropolis a statue of Henry Grattan. The Corporation of Dublin, which passed a unanimous vote of thanks to Mr. Sullivan for his generous initiation of this patriotic movement, are, I understand, ready at any moment to give a formal grant of the site which a monument to Grattan ought to occupy in front of our old Parliament House. And why is not the statue yet chiselled or cast, and standing in College-green? I think many of your readers will join me in saying that there ought not to be any further delay in setting about it.

I understand that the committee, as soon as they got in hands the needful funds, two years ago, determined to request Mr. Foley to undertake the work of the Grattan Statue, on the condition that it should be erected within five years from that time. Mr. Foley (as I am told) was to be invited to come over to Ireland and consult with the committee as to details, to fix upon the site, and, on receiving a formal order, to send a model of the intended work. But Mr. Foley has not yet come over, nor sent a model, and the honorary secretaries of the committee have, so far as I am aware, let the matter fall into oblivion. It is now rumoured that Mr. Foley, owing to the state of his health, and to the great accumulation of unexecuted orders at his studio, cannot undertake the Grattan Monument.

The same artist, a great many years ago, undertook the greater and more elaborate work of the O'Connell Monument, which, it is confidently hoped, will one day appear in gorgeous marble and bronze on the site that has been set apart for honour to the memory of that greatest Irishman of his generation.

Perhaps it will be long yet before Mr. Foley will have leisure to finish the O'Connell Monument; and the Grattan Monument, if he can undertake it at all, he cannot be expected to take in hands till after the other; and Mr. Foley is but a mortal, whose life and time for working must soon come to an end, though the fame of his genius will live for ages.

I think I but speak the general sentiment of patriotic Irishmen when I confess my impatience to behold in the Irish metropolis, where already is erected the statue of O'Brien, the promised Monuments to O'Connell and Grattan. May it not be well that the Grattan Monument Committee, at least, should meet and consider whether anything is to be done to secure the execution of their work within a reasonable time? Let them consider the O'Brien Statue. Is not that work an ornament to the metropolis—an honour to Irish art? Is not the statue a striking likeness of the patriot, whose memory we desire to live in the hearts of all generations to come of Irishmen? Is it not a work which well serves the purposes of a national monument? But the O'Brien Statue has been erected in Dublin by Irish hands, after the design of a resident Irish artist; and the same skilled hands, may they not be got to execute in Dublin, and without delay, a statue worthy of the memory of Grattan, and of the historic site at the gate of our old Parliament House?

LAW.

COURT OF COMMON PLEAS.

(Before Chief Justice Monahan and a Special Jury.)

A. and E. Dudgeon v. John Nolan.—This was an action to recover £701 15s. 7d. for work done by plaintiffs, who are building surveyors, for defendant, who is a builder, and also for work and labour as witnesses and the expense of giving evidence for Mr. Nolan in the Court of Chancery. The defendant had lodged £39 10s. 6d. in court, and had pleaded with respect to the balance of the claim that the work in respect of which it was demanded had been performed in such a way that it proved useless to him. Mr.

Nolan had been employed in erecting for the Provincial Bank the handsome structure which now stands in College-street. The original estimate of the cost of doing so was £20,350; but in consequence of unexpected difficulties experienced in the soil upon which the foundation was laid, and other causes, the total expenditure reached £34,494. Differences having arisen between Mr. Nolan and the bank as to what he was entitled to, Mr. Nolan employed the plaintiffs to make measurement, &c., for him. The defendant in the present action brought an action against the public officer of the bank to recover the balance of what he deemed himself entitled to in remuneration for his services in erecting the new building. The bank instituted proceedings in Chancery to stop that action. An injunction for that purpose was granted by the Vice-Chancellor; but subsequently on the hearing of the cause the injunction was dissolved, and Mr. Nolan was successful in the suit in that court. The bank appealed, and the decision of the Vice-Chancellor was reversed by the Court of Appeal. These were the proceedings in connection with which the evidence of the plaintiffs in the present action was given for Mr. Nolan, who subsequently came to an arrangement with the bank. The case lasted four days, the evidence on both sides being of the same contradictory character as that given in recent building trials. The jury found for plaintiffs, with £25 damages over sum lodged in court.

The Chief Justice—in his lengthened charge to the jury in above case, wherein one of the questions raised was as to the ordinary scale of fees payable to building surveyors,—in order to explain to the jury why the rate should be $1\frac{1}{2}$ per cent. for some portions of their work, and $2\frac{1}{4}$ per cent. for others, stated that one of the ordinary works on which a surveyor was employed was to measure from the plans and specification the quantities of the several sorts of work to be executed in a building proposed to be erected; and that these quantities so ascertained, when priced by the builder who was about to tender, and the value of the items calculated, formed the basis of the builder's tender for the work; and, it being doubtful if the builder would succeed in getting his tender accepted, a custom had grown up of charging only $1\frac{1}{2}$ per cent., instead of the ordinary charge of $2\frac{1}{4}$ per cent. To our readers who know that this difference of the two rates is simply proportional to the difference of time and labour expended by the surveyor, between measuring from plans and from the work as executed, it is unnecessary to comment on the above. Of course no such explanation was given in evidence, nor was it apparently thought necessary to give any explanation at all of a point that seemed to be taken for granted; but the fact of such a bad guess having been made by the Chief Justice—a guess amounting to a misdirection on a point of some importance in the case,—points out very strongly the necessity of some assessor being employed in technical cases, whose previous knowledge would be available both for the shortening of cases by rendering a great mass of technical evidence unnecessary, and give more precision and certainty to proceedings.

THOMASTOWN SESSIONS.

Rev. James Ryan, P.P., v. John Dalton.—This was an action brought for £10, for the recovery of a "building plan" of the chapel of Pitt, near Gowran, Co. Kilkenny. It appeared from the evidence of plaintiff that in 1863, he procured a plan from Mr. Butler, of Dublin, for the rebuilding the chapel of Pitt, parish of Clarragh, and that in 1868 a difference of opinion arose amongst the parishioners as to the plan, and he then gave it to defendant to submit it to another architect

in order to ascertain if in the opinion of the referee it was a proper plan. He had in his hands at the time £30, collected in the parish, and out of this he paid £5 for the plan. He returned the greater portion of this money to Mr. Nolan, the treasurer. He never got the plan since, nor heard anything of it, until he heard it was condemned by another architect. There is at present a suit pending in Chancery, relative to the building of the chapel. Defendant stated that, in 1868 he was requested to get the parishioners together to have matters arranged, when it was proposed that the plan which Father Ryan had should be submitted to another architect and, if approved of, all the parishioners would agree to it. The plan and specification were consequently submitted to an architect, who condemned both, and a sketch of a plan and specification were then made and approved of by the bishop and a majority of ratepayers of the parish; and the plan which Father Ryan wanted to be carried out was condemned; all were unanimous as to building a chapel according to the other plan, at a cost of £1,000. His Worship stated that he regretted to find such dissensions in the parish, but he had nothing to say to the merits or demerits of the building plan; however, acting on the principle of law, he should hold that plaintiff being first in possession of the plan, and being, as termed in law, a "bailee" he was entitled to get back the plan. He would therefore make a decree for the amount claimed; but to be reduced to 6d. if the plan be given up within a month.

COURT OF COMMON PLEAS.

(Before Chief Justice Monahan and a Special Jury.)

Ingram and M. Williams v. J. G. Mooney.—This was an action for the recovery of £3,000 damages for injuries said to have been sustained by plaintiffs in consequence of the alleged negligence of defendant, or of persons employed by him, in taking down the houses 12 and 13 Lower Sackville-street, in this city. The plaintiffs are drapers carrying on business at 14 in same street. The defendant is a wine and spirit merchant, carrying on business at 1 Lower Abbey-street, and having become the purchaser of the premises 12 and 13 Lower Sackville-street (formerly occupied by Messrs. Browne and Payne, tailors), employed Mr. Meade, builder, to take down the old buildings and erect new concerns on same site. Plaintiffs contended that their house had a right to the support given by the walls of the old premises, and that the work of pulling down the old buildings was done so carelessly that their drapery business was very seriously injured, involving the loss of a large portion of the premises, consisting of sleeping apartments for business assistants, servants, and others, and that their trade was largely interrupted, owing to the damage done to the business portion of their house. The defendant's case was that the work in question was done without negligence, but admitted the trespass complained of, and a sum of £20 was lodged in court in satisfaction of plaintiffs' claim for compensation. The case was four days at hearing, and during the trial several witnesses—architects, builders, and others—were examined, and some admirable photographs were produced, and which at one view exhibited to the jury the establishment of the plaintiffs, and the new house in course of erection for Mr. Mooney. Chief Justice Monahan charged the jury, and handed them a number of questions, on the answers to which his lordship said he would direct a verdict, for the purpose of raising certain legal issues if their necessity would arise by a verdict either way. The jury after two hours' consultation, returned into court with an answers to the questions, to the effect that plaintiffs' house had been damaged by the taking down of Mr. Mooney's two houses, from which it was entitled to support; that proper precaution was not used in their shoring while being taken down; that a portion of the damages resulted from negligence, and a portion from the fact of taking them down; that these houses could not be repaired with-

out injury to the plaintiffs' premises; that they were in such a state that it was necessary for the improvement of the property and public safety that they should be rebuilt; that the £20 lodged in court was a sufficient compensation for the trespass complained of; and that the plaintiffs had sustained damages by injuries to their premises from the nature of the work and want of care to the extent of £100. His lordship requested the jury to assess the amount of damages under each head. The jury then divided that amount into two sums of £50 each. His lordship said that the assessment of the jury then was that the £20 lodged covered the claim for trespass; they found £100 for the damages in taking down the house, £50 from the nature of the work, and £50 for want of care. In this state of facts he would direct a verdict for the plaintiffs for £50, reserving leave to them to apply to have that amount increased to £100, and leave to the defendant to have a verdict entered for him. The foundation of the verdict was that the want of care should be brought against Mr. Meade, the builder, and for the nature of the work against the defendant, and therefore he would say £50. Verdict accordingly.

Counsel for plaintiffs—Sergeant Armstrong, Mr. Exham, Q.C., and Mr. Gerald Fitzgibbon. For defendant—Messrs. Heron, Q.C., Falkiner, Q.C., and Holmes.

MAYNOOTH SESSIONS.

Thomas Holbrook v. Joseph Payne.—This was an action brought by plaintiff, who is a surveyor, residing in Great Brunswick-street, Dublin, to recover a sum of £26 10s. 6d. for work done in preparing maps, taking levels of a certain water course, &c., and for personal attendance in one of the superior courts. Plaintiff submitted a bill of particulars for the amount claimed, and stated that he was employed by Mr. Doran, defendant's solicitor, in an action in one of the superior courts to execute certain works in surveying, &c. Mr. Doran proved to getting the work done by the direction of defendant, who undertook to pay the expenses. Defendant denied that he entered into a contract with Mr. Doran, his solicitor, to pay more than £1 for surveying the water-course, and added that he could have got the work done for that sum by a surveyor in the county; but on the suggestion of Mr. Doran, who said he could get a friend of his own in Dublin to make the survey for the sum named, he left the matter in his hands. After a patient hearing of the case, in which there was a great deal of conflicting evidence, his Worship briefly summed up, when the jury returned a verdict for plaintiff for the full amount claimed, with expenses.

NEWTOWNLIMAVADY SESSIONS.

A LAND SURVEYOR AND HIS PUPIL.

Samuel Easson v. Mary Begley.—In this case plaintiff, who described himself as a land surveyor, summoned defendant for £10, amount said to have been due for lessons alleged to have been given her son. Plaintiff's case was that he had agreed to make defendant's son a land surveyor, civil engineer, &c., for the sum of £15, of which money he received in instalments the amount of £5. Had been under his tuition for about six months, and left of his own accord. Plaintiff now processed for the remainder of the money, as he considered he had a perfect right to it, even although his pupil left, which was not his fault, as he was both able and willing to teach him. On cross-examination, plaintiff said he considered rapid progress had been made by his pupil, as he drew a map (which, on being produced, elicited hearty laughter from the court), indicating a portion of the property of Hugh Lane, Esq., but which might have been, for aught the youth knew, one of the Fiji islands. Plaintiff also admitted he was to teach him the use of the theodolite, and was of opinion he had done so by both of them going on one occasion to

take the height of Magilligan mountain, even although they went astray in their calculations a good distance! For the defence it was contended by Miss Begley and the "young surveyor" that during the time the latter was under plaintiff's tuition he made no progress whatever—being made to carry the "chain" upon all occasions on which his master went surveying; and also, on asking to be made aware of anything intricate connected with his business, plaintiff would invariably answer—"That's my affair, not yours." In fact, plaintiff seemed quite determined to keep all the secrets of the profession a mystery to the young man. Miss Begley distinctly stated that plaintiff had some time previously consented to take £1 in lieu of the whole claim; and that the reason her brother left was entirely owing to plaintiff's incompetency to teach him. His Worship strongly condemned the plaintiff for the manner in which it appeared he had been endeavouring to keep his pupil, who seemed to be a smart young man, in utter ignorance of his profession. He would give a decree for £1.

IN RE "DUBLINIENSIS."

Our contributor "Dubliniensis" writes in this issue with the scalpel instead of the pen, and he seems fully competent in the handling of both the instrument and the subject. Added to his intimate knowledge of the history of architecture, fine arts, and building matters in Ireland, our co-labourer has a claim to be heard on his own account as well as on behalf of the very large constituency whose interests he has at heart. At home and abroad his pen has always been used in the service of Ireland, and in the most useful and practical way, as is evidenced lastly though not least in his contributions to the pages of the IRISH BUILDER.

SEWAGE AND HEALTH.

It has often been a matter of congratulation in Ireland that the experience gained in the construction of railways in Great Britain afforded very material aid in undertakings of a like kind in this country. "The battle of the gauges" in England guided our engineers to the adoption of the medium gauge in this country. Many other questions were determined for us in the sister country, for the most part in time to save us, in an important measure, from the effects of the want of that experience so valuable in all undertakings of magnitude. We (*Saunders*) hoped that like prudence would have guided our local legislators in the matter of drainage. To what cause, then, are we to attribute a different result? In or about 1853 Mr. Bardwell, an able London architect, regarded as most objectionable the recommendation "to bring all the sewage of Brentford, Hammersmith, Kensington, and places adjacent, right through the metropolis (as if London had not sufficient sewage of its own), occupying in its passage time enough for its entire decomposition, and the liberation of its most noxious gases." "This," adds the same authority, "is actually part of a scheme estimated to cost three millions sterling!" "I apprehend, he continues, "a commission of chemists would have arrived at a very different conclusion." That gentleman little thought that in the year 1871 five millions sterling would have been expended on the London Main Drainage, and three millions more on the complement work, the Thames Embankment, the former undertaking being still very far from completion, whilst sums of money have been expended in litigation between the Metropolitan Board of Works, and the Essex Sewage Reclamation Company, ending by a Parliamentary Committee, possessing local means of readily obtaining information, refusing the prayer of each. Here, then, is a dead lock. The Sewage Company desires an alteration in the terms of what it now finds, to its cost, has

been an impracticable undertaking; the Metropolitan Board is refused powers to add another twenty miles to its main sewer, to try and save the Thames from further pollution and shoaling, and yet our Corporation have actually got permission from a committee of one House of the Imperial Legislature to plunge us not only in the mud, but also into interminable financial difficulties and endless litigation, not to speak of depriving us of

"Sacred health!
The monarch's bliss, the beggar's wealth."

For truly we shall not traverse the laws of chemistry and the laws of life without forfeiting that

"Seas'ning of all good below!
The sovereign friend in joy and woe."

Naturally, we ask what return has London obtained for the great outlay—which is not, however, by any means as large, relatively to the revenue of the two cities, as that which will be required for Dublin? The mortality of her people has risen, her poor rates have also greatly increased, her port is threatened with extinction. One gain has been suggested, certainly—namely, the increased powers of defence, in case of foreign invasion, possessed by the Metropolitan Board of Works, if furnished with proper pumps and hoses—for surely if the victors of Dorking will but take the Thames route, then the victory of Dorking will be but a myth indeed. It is hard to restrain a smile at the proposition of Mr. Bazalgette, to dig a hole in the sands of the North Bull, and bury the deposit from the reservoirs; to be taken again, when thus dried, and carted somewhere else. Had Mr. Bazalgette ever tried digging a few feet into the water-soaked sands of the North Bull, he would have known what rank nonsense he solemnly recommended. We commend to his study the sad records of the Walcheren expedition, and the experience derived from Guadeloupe. The climate of Dublin will not bear tampering with; even that of London, in certain respects much less liable to suffer from like causes, does not escape the effects of the infliction of sewer gases, as shown in the increased general mortality and the frequency and severity of many zymotic diseases. We are not alone in our objections to the Corporation Sewage Scheme. The following observations, which we quote from a recent number of the *British Medical Journal*, confirm the opinions which we have expressed on the subject:—

"The problem, What is to be done with our sewage? much needs solution. With a population about one-tenth that of London, and certain facilities not possessed by the metropolis of the United Kingdom, Dublin, on the one hand, affords a suitable opportunity, for the carrying out of a system of drainage, based on such scientific principles as would ensure the prime desideratum—namely, the promotion of the health of the inhabitants, without neglecting such means of utilisation as would be compatible with the attainment of that grand aim of all such measures. The plan for which the Corporation of Dublin has succeeded in obtaining the sanction of a Parliamentary Committee of the House of Commons accomplishes neither end; indeed, it does more than promise the non-fulfilment of those first essentials of correct sanitation—for, backed by sworn engineering evidence, it flies not only in the face of all such commonplace matters as improvement of the public health and sewage utilisation, but undertakes to overcome the considerations of natural gradients and water-sheds, though of course at vast cost; concentrates the sewage of large tracts of the suburban districts, much of which will have to be raised at great cost by pumping; and after a route of many miles through a tolerably thickly inhabited city district, with a climate and locality but too prone to favour zymotic disease, which the general poverty and overcrowded state of many parts aids, casts the already fermenting sea of filth into the mouth of the river, whence it will readily find its way back to the city and suburbs, distant only one, two, and three miles in so many directions. We may ask, what provision is being made against the risk of silting up the shallow mouth and bar of the port of Dublin? Only the interposition of a subsidiary tank, which will be valueless at the very time when most wanted—namely, when heavy falls of rain occur, carrying down from the ill-made and constantly filthy Dublin streets vast amounts of sedimentary matter."

ON ARCHITECTURE AND ITS RELATION TO MODERN LIFE.*

By AN ARCHITECT.

An examination of the theory of architecture, which can only imitate the *principles* of Nature, would lead to an investigation of the causes of beauty itself—the qualities which always accompany it. This is the most subtle and difficult enquiry connected with the arts.—*Sir Charles Eastlake.*

Parmi les arts, l'art de l'architecture est certainement celui qui le plus d'affinité avec les instincts, les idées, les mœurs, les progrès, les besoins des peuples; il est donc difficile de se rendre compte de la direction qu'il prend, des résultats auxquels il est amené, si l'on ne connaît les tendances et le génie des populations au milieu desquelles il s'est développé.—*Viollet-le-Duc.*

From whatever causes, it is certain (and everyone who has given attention to the subject will bear us out in the remark) that for twenty persons capable of taking an enlightened and intellectual interest in music, painting, and sculpture, we scarcely meet with one who has any interest in architecture, any knowledge of its principles of design, or indeed any suspicion that there are principles at all concerned in the matter. It is true that the tide of revived mediæval feeling, which has of late years flowed over this country, has rendered fashionable among non-professional persons a certain interest in one particular phase of the art of architecture. But even this has in reality amounted to nothing more than the acquirement of a superficial historical knowledge of certain facts connected with this one style, combined with a free use of what may be termed 'Gothic slang': and our popular writings on the subject in the shape of 'manuals' and 'hand-books,' are nearly all the work of amateurs—chiefly clerical *dilettanti*—who confound Archaeology with Architecture.

On one point, however, all persons will probably concur with us, namely, that something called 'Architecture' has involved, and will probably continue to involve, the expenditure of no inconsiderable proportion of the public and private revenues of this country; on this ground alone it is surely desirable that both public bodies and private individuals should have some distinct ideas on the matter. But there is a higher reason than this for inviting a little attention to the subject.

Architecture differs from other arts in this, that its productions are not, except in a legal sense, private property. A bad volume of poetry soon dies a natural death; a bad picture may be laid out of sight, or at most is not necessarily obtruded upon others than the owner. But a large building is no such innocuous creation. It can neither be laid up in a garret, nor even 'reviewed' out of existence. Once built, there it stands, an accomplished and stubborn fact; cutting off from us a certain proportion of light and air and blue sky, for which, as Mr. Ruskin says, 'It is bound to give us something in return.' It may exist as an expressive, picturesque object; an evidence of thought and originality in the selection, collocation, and decorative treatment of materials; a friend whose aspect, changing with the changing seasons, becomes interwoven inseparably with our daily associations, and is hailed with delight after a long absence; or it may be, as too often happens, a shadow upon our daily life, a grim mass of lifeless stone or brick oppressing us with its tedious and persistent gloom, or a great fantastic meaningless jumble of angles, and points, and chimneys exercising on us a constant irritating influence not the less real and annoying because its source may not always be distinctly traceable. And which of these aspects our collective buildings shall assume—How far we may extract anything of pleasure or grace out of the multitudinous erections which the needs of our crowded modern life call into existence—depends not alone, or even in chief part, on the body of persons called architects, but in a very great measure on the amount of feeling for and knowledge of the subject, and the degree of importance attached to it, by those who employ (or who do not employ) the aid of the professional designer. In architecture, as in most other matters, the law of supply

and demand operates largely; and so long as the art of architecture, in the real sense of the word, is a subject entirely ignored even in the most liberal of our educational programmes, and either slighted or misunderstood by the public and the press generally, so long is there little probability that what is so lightly valued should be forthcoming, or that any of the best heads among us will give their thoughts to a profession so little likely to afford them any worthy occupation or recognition.

What, then, is Architecture? At the commencement of this century, the answer would have been that the art of architecture lay in the employment of certain patters of columns and capitals, each with its appropriate base and superstructure, known as the 'five orders,' the precise proportions of which in all their parts were indubitably fixed by able theorists as well as by measurement from Greek and Roman examples, and were as the law of the Medes and Persians, which altereth not. The application of these features to the exterior of a building, without reference to its internal arrangement or objects, constituted it a work of architecture: 'very fine for a Greek god,' as the late Lord Dudley (he of the *Quarterly*) said on seeing the drawings for his new house, 'but a modern gentleman must have offices.' In general, however, the wealthy amateurs stood by the five orders very consistently; there is indeed a story that a gentleman of the period, seeing one of these sacred features treated with unbecoming licence under the hands of

that very great master
Who found us all brick, and left us all plaster,

in Regent's Quadrant and elsewhere, took on him to interpose, enquiring of the foreman 'what order he called *that*?' and was brought up with the reply, 'It's Mr. Nash's positive order, sir.' Of late years positive orders have taken another turn, and everything must be an imitation of some feature of mediæval architecture, even down to the grotesque heads of devils and other monstrosities, which were a natural outbreak of the half-savage humour of the Middle Ages, but which glare at us from our new churches and town-halls with an absurd incongruity of sentiment. At the present moment very few of the leading architects of England or France entertain this view of their profession, as the art of copying; even those in this country who sanction it by their practice, seldom defend it in theory. But the idea has become so rooted in the minds of a large proportion of the public, that it is often impossible to satisfy people with a design until they are assured on reliable evidence that it resembles, not only in general aspect, but in the treatment of all its details, something that has been done some hundred years ago; and therefore it is necessary to state, most emphatically, that 'architecture' is not 'archæology,' that the two things are perfectly distinct, and that the reading of books giving an account of the various periods of Gothic architecture, which is so fashionable with certain people just now, no more constitutes a study of the art of architecture than reading a history of Italian painters and their works constitutes a study of the art of painting.

Architecture is simply the art of building with constructive and decorative expression. It consists mainly in so arranging and grouping the principal portions of a structure as to form an agreeable and well-balanced outline or composition of a definite and consistent character; in so emphasizing and marking the main constructive portions of the building as to increase its apparent stability to the eye, and to render its external aspect expressive of its internal purpose, arrangement, and construction, instead of being a mere dull and lifeless screen or protection from the weather; and lastly (though this is the least important branch of the art), in applying suitable and expressive decoration to enliven those other portions of the structure which, unless relieved in such a manner, might appear too dull and monotonous to the eye. The reader will be kind enough to

notice the order in which these three requirements of an architectural building are named, which is in accordance with their relative importance and priority of consideration. Let it be remembered that architecture is essentially based upon practical and constructional necessities, and that a building is architecturally truthful only so long as it shows itself as a *bonâ fide* endeavour to meet and to illustrate the requirements of its special case. Consequently the *plan* is always the first consideration, and upon or along with its general distribution arises the general composition of the design, the question of what form and what relative position the leading feature (tower, dome, or whatever it be) should take, so as to emphasize and call attention to the central point of the plan, and indicate the internal arrangement of the building. In a similar manner the general construction of the building and the provision for light, ingress and egress, ventilation and such requirements, become a part of the design. If, for example, our edifice be a lofty apartment in one height, we treat it accordingly, with lofty windows, and with a generally vertical predominance of line; if, as in a mansion, we have one floor over another, this becomes the *motif* for the division of the design into corresponding stages, marked externally by horizontal mouldings ('string-courses,' as they are technically termed). We must have openings in the wall for light; we surround these with mouldings, or crown them with canopies as a weather screen. It is essential that our walls have a firm and solid base. By the thickening-out of the walls near the ground we get the base-course or 'plinth,' giving both a real and apparent stability, which we may still further emphasize by multiplying the lines and mouldings which mark and define this additional thickness. Wherever there is a sloping roof (which in this climate is nearly always), it is an essential of really good building that the roof overhang the walls, so as to throw off the wet from the latter. We introduce mouldings to break the abruptness of the angle of roof and wall, and so we have the origin of the 'cornice,' which is nothing but the projection of the roof artistically treated. On the important effect of the mechanical structure of the building upon its style of design, we shall have occasion to touch farther on; but even the above brief summary of some of the relations between practical requirements and architectural design may serve to indicate how absurd it is for any one to set about building, as many do, with the intent to imitate some previous architectural model and adapt their practical requirements thereto; thus exactly reversing the common sense and logical method of procedure, besides incurring the risk of other inconsistencies, both practical and æsthetic, which we shall have to allude to. Our third step in design, decorative detail, is the only one which can be called arbitrary in its application. We may almost entirely dispense with it, and still have a very fine and expressive building, as in some of the finest early Gothic work of France and England, or we may carry it to the highest degree of elaboration, provided that we do not obscure or weaken the constructive design; provided also (which is a very important principle) that the ornament is confined to the decoration of features which already form a portion of the main design, and play an obvious part in the building. Architectural truth of design is violated whenever a feature is introduced purely as an ornament; it then becomes an excrescence. This principle, to which we shall again refer, has received practical illustration in all the most admirable monuments of architectural style which remain to us. This restriction, however, does not apply to sculpture of a high class and possessing artistic interest of its own; such work passes out of the domain of architectural ornament, and is to be viewed as a separate art in itself; and the recognition of this distinction between sculpture and mere ornament leads us naturally to the most important and interesting consideration

* From *Fraser's Magazine*.

with reference to the theory of architectural design, but the most difficult to render intelligible to those who have not specially studied the subject, viz. the nature and degree of expression which architecture as an art is capable of, and the difference of principle lying between that and sculptural or picturesque expression.

The nature of this distinction is broadly indicated in the first of the two quotations placed at the head of this essay. Architecture, it is assumed by Eastlake, can only imitate the *principles* of Nature. Such a limitation, it is evident, places it at once on ground quite distinct from that occupied by what are sometimes called the 'plastic arts.' Not only do sculpture and painting possess, as we all know, the power of imitating the outward forms of Nature, but this imitation is almost a *sine quâ non* towards the realisation of the special objects. They influence our minds either through the mere reproduction of scenes or objects in Nature, which possess beauty or interest for us, or (in their higher efforts) by using such forms or aspects as the vehicles for the expression of the artist's own feelings and imagination, or of his reading or translation of historical or imaginary scenes. Architecture has no such power of reproducing or depicting the facts and forms of Nature, or of making use of these for the expression of definite facts or ideas. As an art it is removed farther back, so to speak, from the plane of intellectual vision; its references to Nature are metaphysical and abstract rather than physical and concrete; and it seeks not, like painting, the distinctions and *differentia* of natural objects, but their affinities and points of resemblance, whereon to found its own general principles. In variety, vividness, and intensity of expression and of human interest, architecture can never compete with sculpture and painting; but its lack of definite expression is compensated for by a proportionate degree of breadth and universality. In all true and consistent architectural styles, whatever their diversities of construction and aspect, the same fundamental laws will be found illustrated, and the same adoption of the principles rather than the forms of Nature; the resemblance to Nature appearing most purely metaphysical when we contemplate a style or a representative building as a whole, and approaching more nearly towards physical imitation in proportion as we direct our attention to details. This will, perhaps be rendered more clear by a brief reference to the characteristics of the two most perfect and consistent styles of which we have any record: the Doric Greek and the Early English Gothic.

Looking at any of the typical structures of these two styles, we recognise in them certain broad characteristics which are common to every production which can claim the title of architecture. Such are *symmetry* or balance of parts, and *rhythm* or regular recurrence of features and divisions of equal proportions; properties which, however exemplified, we know and feel to be by a law of our nature pleasing to us, though we cannot define or comprehend the origin and *rationale* of such pleasure. So also the necessity, instinctively felt and universally responded to in architecture, for a solid basis to the superstructure, and a crowning member to complete the composition, is one of those deep-seated principles which underlie not only architecture, but music and poetry also; and is based on considerations common to all these arts. When we look more into detail, we become cognisant of those special qualities which distinguish good architecture from bad, and afford more definite and marked examples of the imitation of natural principles. Take, for instance, the most perfect and consistent architectural feature, probably that has ever been invented—the Doric column. This is a feature intended for the support of a superincumbent weight acting vertically upon it. A plain cylindrical post, with a square block or abacus at the top to distribute the pressure a little more would have answered the purpose practically. But this was not

enough: the column must indicate its properties and office; and every part of it is designed with the view of expressing power to sustain vertical pressure. Its bounding lines are slightly convex, giving greater apparent strength and substance than a perfectly straight line would have ensured. Its appearance of rigidity is intensified by the hard sharp vertical lines formed by the edges of the 'fluting,' which, converging together at the top, are there bound round by the necking or 'astragal,' above which the column expands into the broad shallow curved moulding supporting the square 'abacus,' which, in turn, forms the seat for the superstructure. We cannot say exactly why this peculiar treatment should have the aspect of strength and fitness for sustaining weight, but we may see that the same general treatment is followed in Nature. In the case of a man's hand and arm resisting a pressure vertical to it, we find the same characteristics—the slight curve of swell in the outline, the tapering and binding together of the muscles at the wrist (the 'necking' being emphatically the *wrist* of the column), the subsequent expansion beyond this point into the flat surface of the hand prepared to meet the opposing surface—are all the counterparts of the columnar design; which, while avoiding the slightest hint of imitation of form, reproduces most faithfully the principle of the natural feature. We do not assert that the designer of the Doric column had such imitation absolutely in view; whether he had or not is nothing to the purpose; the fact remains that, in working out the most successful of all architectural features, he followed, whether consciously or unconsciously, the same principles as are exhibited in Nature, while strictly preserving the rigidity and symmetry of form essential to the durability and stability of expression required by architecture. As we descend to minuter and more strictly ornamental details, we find that we may safely approach a grade nearer to natural form without losing architectural expression. Thus the well-known Greek 'honeysuckle' ornament, as it is called, approaches in form very nearly to something like a real product of vegetation. It is, nevertheless, no imitation of any flower; but it is an imitation of that principle of growth from a central stem which is common to nearly all flowers, treated with that stiffness of line and absolute symmetry of parts which are required to bring it into harmony with an architectural design. If we turn from the Parthenon to a Gothic cathedral, we find a similar imitation of natural principles, though in a somewhat different direction. The Greek architect recognised *weight* in his design, and even emphasized it. The mediæval architect, piling up buildings of far greater real massiveness, would fain eliminate altogether the appearance of weight, without concealing structure: and so there arose in time, and after multiplied experiments, those structures which are the admiration even of those who do not appreciate the constructive and artistic problems grappled with, where the weight and mass of the supporting piers is made to put on a face of airy grace and lightness, from which the vaulted ceiling appears to spring in a natural and inevitable outgrowth. And how is this lightness mainly achieved? In reply we have but to observe that in nature it is only stems which have little or no weight to support that can arise straight, slender, and upright for their full height. The conditions are the same, the order only of our reasoning is reversed: the flower-stems are tall and slender because they have no weight to support; the Gothic vaulting-shaft appears to have no weight to carry because it is tall and slender in proportion: the lines of the vaulting carry out the same principle of lightness, the vaulting-ribs appearing to spring from, rather than to rest upon, the heads of the shafts, and by their thin lines, falling over in a curve to the centre, calling away the eye from the contemplation of the masses of stone between them, and cheating it into the belief that there is really no weight at all to be carried. So that here, simply by the method of treating the

surface of the masonry—of so moulding and fashioning it as to suggest and emphasize the idea of verticality and upward tendency, the mediæval architect was able to remove from what was in reality a collocation of ponderous masses of stone all idea of downward weight and pressure, and to represent his building as a growth from the ground, on natural principles, though without any imitation whatever of natural objects. The Gothic vaulting rib is perhaps one of the most remarkably successful instances of architectural expression, since it increases both the apparent strength and lightness of the stone ceiling; for, could we pare off the mouldings which form the vaulting-rib, and leave only the bare line formed by the intersection of the different planes of the vaulting, the latter would positively appear heavier through this actual loss of material, because the attention would then be directed only to the broad masses of the masonry, instead of being concentrated on the comparatively narrow lines of the moulded rib. The imitation of principle rather than form is again to be seen in the ornamental detail of Gothic as of Greek architecture; with the difference that the former style comes altogether somewhat nearer to nature than the latter; a nearer approach being made to natural forms in some of the larger features of Gothic architecture than was permitted in any but the smaller decorative details of Greek; and thus we find early Gothic ornament approaching so near to natural form as to throw aside symmetry, and exhibit, in the carving of capitals, &c., much of the freedom and irregularity of nature. But even here the instinct of the early mediæval architects kept them clear of mere imitation of form; and the early Gothic carving (the superior beauty of which is now universally recognised) has its own forms and its own conventional stiffness of treatment: purely architectural, it imitates the principle of irregularity of growth, but not the growth itself. It was only in the rich and fascinating decadence of the style that the architectural carver forgot his true office, and attempted a literal translation into stone of the delicate crisp forms of natural vegetation, as in the latter Gothic capitals, when the foliated ornament no longer appears as part of the architectonic growth of the structure, but as a mere application of imitative carving, in a material too coarse and granular to give any but an imperfect rendering of the fibrous delicacy of nature; the effort resulting in *tours de force* of execution beautiful in their way, but which have lost all that metaphysical beauty and fitness of expression which rendered the earlier Gothic ornament so satisfactory to the judgment.

We alluded just now to the effect of mechanical structure on style and expression in architectural design. Without troubling our readers with questions of practical construction, a word must be said in illustration of the general relation of the principles of construction to those of design; the latter being, in all true styles, the outward expression of the former. We may still go for our illustration to the two styles already alluded to; for Greek and Gothic architecture represent respectively, in the purest and most unmixed form, the two main divisions of construction in architecture—viz., the *trabeated*, or (as the word implies) that in which openings or apartments are roofed by a beam or lintel (*trabes*) laid from wall to wall; and the *arcuated*, in which the arch alone is used for roofs and window-heads, &c. One important practical distinction between these two typical modes of construction will be perceived at once. A lintel construction is limited in the size of its openings and apartments by the cohesive strength of the material used as a lintel, and the lengths in which it can be made available: for example, we cannot procure stones in one block of more than a certain length, and consequently our walls or columns cannot be farther apart than the greatest distance across which the stone lintel will carry. There is no such limit in arch construction; the arch consisting in the collocation of separate stones in such a way that by their mutual pressure

they shall uphold each other, all superincumbent vertical weight being transmitted latterly through the arch stones or *voussoirs* (as they are termed) to the base or abutment on each side from which the arch springs: and, so long as this abutment is immovable, almost any space may be bridged, and nothing but absolute crushing of the materials can cause the fall of an arch. But a still more important distinction, in its influence on architectural design, is that between the manner and direction in which the weight of the superstructure operates on the supports. A moment's reflection will render it evident that in a building of the beam or lintel construction, the whole of the weight of the superstructure operates by a directly vertical pressure on the walls or columns, and that the latter are mechanically independent of each other; we might remove all the building except two columns and the lintel across them, and the stability of the portion left would remain theoretically unaltered. An arched building is in a totally different case. It stands entirely by the balancing of one pressure against another. Each arch exercises a lateral pressure against its abutments, tending to thrust them outwards; a pressure which must be counteracted either by a massive abutment or by a counter thrust from an adjoining arch. Thus, in the long arcades of our cathedrals, the arches are all balanced against each other; and were the end 'bay' removed, there is nothing but the adhesion of the mortar to prevent all the rest following suit. Now, look at the effect of these constructional principles on architectural design. In the Doric temple, the perfection of the trabeated style, every feature is expressive of vertical pressure; the heavy horizontal lines of the lintel or 'entablature' have no lateral sway or tendency; the column is, as we have pointed out, the perfect expression of resistance to weight acting in the line of its axis. When the Romans, who were great engineers but bad artists, came to deal with architecture, they introduced the arch in their constructions, but with no corresponding change in the principle of external design. They could only borrow the features of Greek architecture; they applied (or misapplied) the column and capital to the exterior of their buildings, either as a mere decoration independent of the construction, or they used it to thicken and strengthen the wall at the points where the thrust of the vault impinged, thus using, for resistance to lateral thrust, a feature whose every line told only of resistance to vertical pressure. As long as there was such a contradiction between internal structure and external design, there could be no true architecture. It was only when, about the tenth century, the idea of the *buttress* was struck out, that the arcuated style found its natural and consistent expression. The Romans, who in their earlier arched buildings had used what is termed a 'waggon-vault'—i.e., a continuous arched ceiling running the whole length of the apartment, and requiring a continuous and uniform thickness of wall to form an abutment for it—had subsequently given the hint of what was afterwards expanded into the Gothic vault, the principle of employing cross arches obliquely so as to collect all the thrust of the vault on to detached points in the external wall. At these points were placed the buttresses of the mediæval builders; masses of masonry projecting at right angles from the main wall (which, between these points, was a mere screen), and receiving the collected thrust of the vaulting ribs; while their form and outline, sloping gradually away from the top to the bottom, and spreading furthest at the ground level, exactly expressed their use and office, as abutments or counterforts leaning towards the building and counteracting the outward thrust of the arched vault. Thus consistency of expression was restored to architecture, which forthwith blossomed abundantly into those marvellous productions of mediæval masonry which the most ignorant admire, and which have been regarded by rhapsodical dilettanti as springing from the desire to re-

produce in stone the splendour of forest scenery, but in which, grand and romantic as their total effect is, all the main features can be traced back, step by step, to their purely mechanical and constructive origin.

(To be continued.)

WINCHESTER TOWN HALL.

IN competition for the erection of a new Town Hall for the City of Winchester, the Council had no less than forty-six sets of plans submitted to them. After mature deliberation the Council recommended six of the designs as being worthy of "special consideration." Amongst these six so retained was one under the motto "Concentration," (27) by Mr. J. J. O'Callaghan of this city, a perspective view of which forms the subject of our illustration in the present number. We deem it highly complimentary to our townsman to find that his design has been favourably noticed by our professional contemporaries in London. The *Builder* considers that it "is a very ably and cleverly arranged plan, every bit of space being utilized." The *Building News* remarks that "'Concentration' has a remarkably compact and well thought-out arrangement. Forming a rectangular block, there is perhaps less lost room in this plan than any others. The hall is located along the back, and is amply approached by entrances at the east and north sides, though rather indirectly. The only fault seems to us to be the number of exterior steps required to gain the principal apartments, though it must be remembered an excavated basement on the intended low site for this building would be very questionable; probably the author had this in view. The conveniences of this plan appear to be more complete than any of the others. The proportions of hall and its roof are good, and the arrangement of the whole plan is, as we have said before, well considered, and fully bears out the motto adopted by its author. The external front of this design, which is in the Gothic style, has, perhaps, a somewhat commonplace appearance, but its defects in this respect, which are chiefly those of detail, are quite overbalanced by the merits of the plan and its general proportions. If the same amount of study had been bestowed upon the façade which the plan evinces, this would probably have been the most successful design of the whole collection." In returning Mr. O'Callaghan his drawings, the Council expressed their thanks for the talent and skill displayed in his design, which led them to retain it as one of the six sets "specially meritorious."

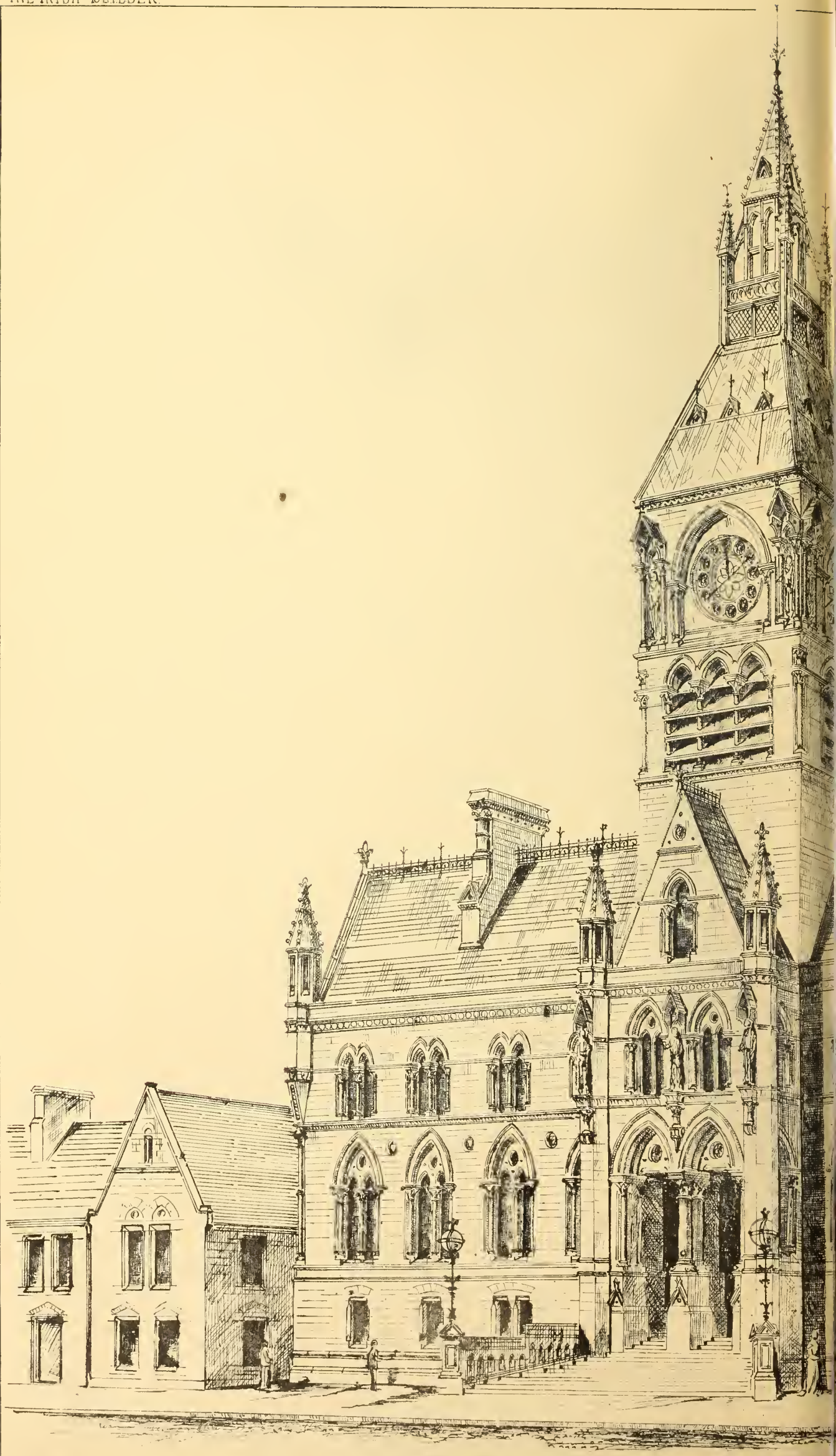
THE PROPOSED ADVANCE IN OPERATIVES' WAGES.

ALTHOUGH many arguments can be advanced in favour of the present demand of the operative carpenters and plasterers for an addition to their wages, we confess we are surprised both at the exceedingly short notice they have given, and the amount of that proposed increase. Everybody knows that building contracts extend over several months—many occupy years in their fulfilment; and as labour both in joiners' work and plastering forms by far the greater proportion of the value of the work executed (the cost of the raw material in both instances being comparatively small), this additional charge of fully 10 per cent. must be derived for a considerable period from the expected profits of contractors. Whether this is a fair and straightforward way of dealing between em-

ployed and employer, we will leave others to determine. Had our advice been asked, we would have gladly assisted, and devoted our services to a movement which, under other circumstances, we conceive, would tend to ameliorate the condition of the operative, but which in this instance we fear will act with damaging influences, because it must deter many from entering upon building speculation or building works generally. We are in a position to know the feelings of the employers on this subject, and we are quite prepared to assert, that had a reasonable notice been given, the demand would have been as cheerfully acceded to as it is now opposed, while in its present form it must engender a feeling of distrust which no after efforts of employes can eradicate. Let us take it as granted that an increase of pay to the operative becomes a necessity; how much more gracefully would it have been likely to be accorded, if, on the 1st of January last it had been made known that such would be expected on the 1st of July. In the interim many were entering upon contracts possibly to extend over the year, and if they did not choose to add this additional percentage there would be nobody to blame but themselves. An instance of the excessive hardship of this has come within our knowledge. A contract, based upon a schedule of prices, and amounting to many thousands of pounds, was signed by one of our largest firms a few days previous to the carpenters' notice being served, and it would have been just as easy to have increased the rates in the schedule to cover the additional cost of labour, as it would have been for the contractors to have signed their names. We would offer many more examples, but let this one suffice; of course it is not in the power of the workman to give a sufficiently lengthened notice to cover all contracts; but let a medium be adopted, and the movement, in a modified form, shall have our hearty support. While offering these remarks, we also volunteer advice, be it accepted or not as it may be considered of value. Labour is a mercantile commodity, to be disposed of in the highest market, and no one can doubt the inherent right of the proprietor of any commodity to place what price he pleases upon it; but a question arises, will the consumer accept this theory? circumstances may compel him to do so for a while, but we sometimes find a reactionary movement sets in which lessens the consumption of what he considers overpriced. We have made this concluding remark, neither in sorrow nor in anger, but as a word of warning—certainly not in a spirit of opposition; our every effort would be as our pen has frequently shewn, to elevate the condition of the working classes, but we would essay to do so in a spirit which would be cheerfully responded to by all who are interested.

Although perhaps it is foreign to the purposes of the foregoing remarks, we think it due both to employer and employed, to state our opinion with regard to the absurd system which remunerates all the members of a craft alike, and which this proposed advance would perpetuate. To the workman of ability it is positive injustice, because it debars him from exercising that spirit to excel which should exist amongst all trades and professions, while it reacts most prejudicially to the employer, inasmuch as when a high rate of wages is fixed as a minimum standard, it prevents him rewarding men of ability according to their deserts. What motive can

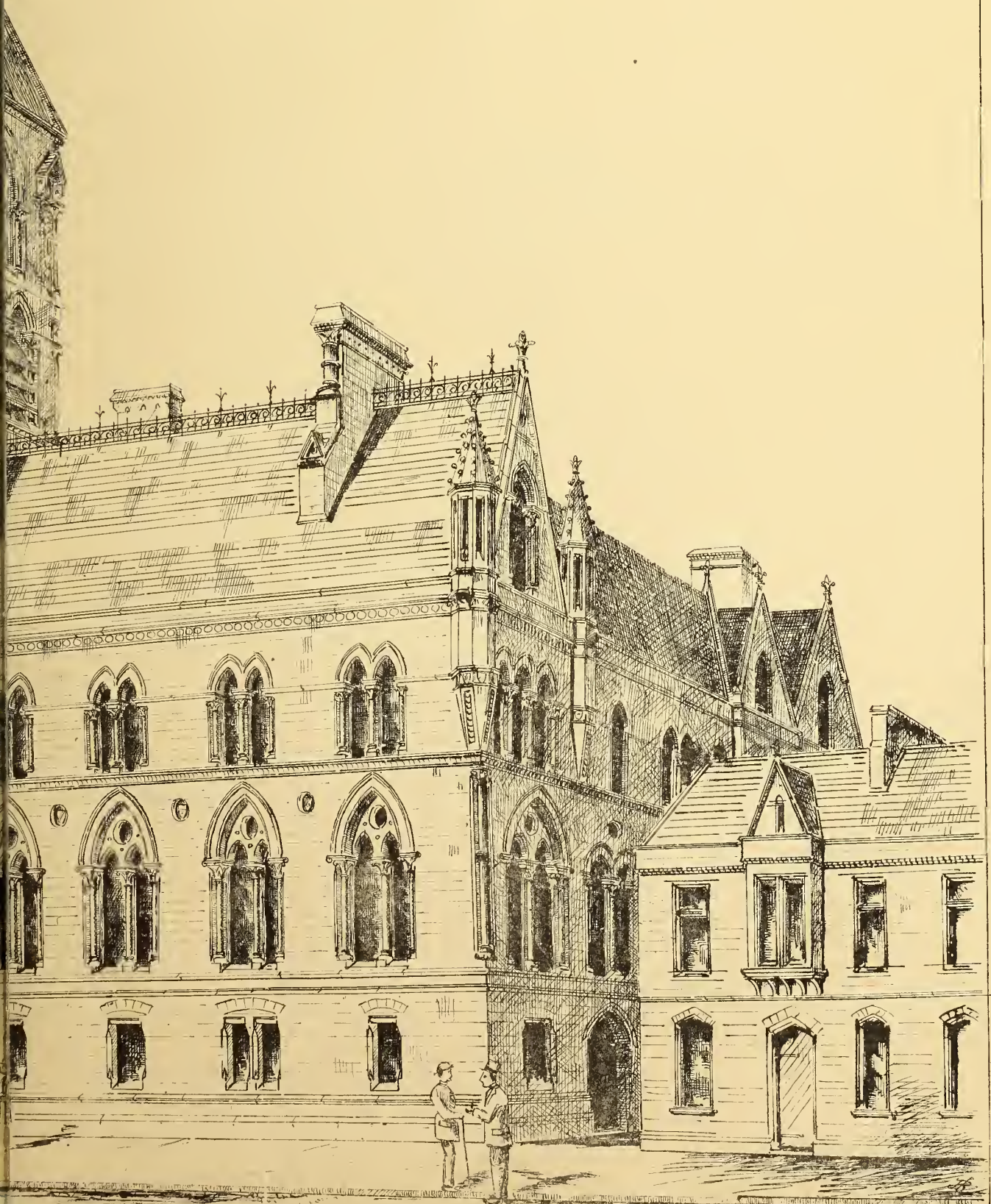
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DESIGN FOR TOWN HALL.

WINCHESTER

J. S. O'Callaghan. Architect



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influence operative talent more than the certainty of obtaining better pay than a brother of the craft of medium qualifications? We would therefore suggest that a system of classification should be adopted, not by the employers, which might be construed into uneven handed justice, but by the men themselves, something similar to that pursued under the German technical educational system. At the present time it is positively true that many tradesmen are paid according to the time they spend either in the workshop or the building, as the case may be, without any reference whatever to the work they produce. Discharge them, whispers the society, if you find they do not earn their wages. But a difficulty exists, because, when a number of men are placed together in a building, as in roofing or similar works, the employer never can ascertain the defaulter; besides, there is a something in the society's rules which tends materially to conceal mediocre ability: this should be of the past, and is certainly not in unison with the growing spirit of the age.

AFTER the manner of a not over-indulgent father, we ventured in our last issue to advise the members of the "Regular Carpenters" boyy for their own good, and considering all that has transpired since, we believe we have succeeded in making a favourable impression. True, a deputation from the "body" waited upon us and stated that the report of their meeting of the 8th of June, which also appeared in our columns, was untrue, and that our advice was calculated to point the finger of scorn at a respectable body of 600 men. To this we reply, that we had no such intention, and we have received assurances from many of the right-thinking of their community which encourage us to hope that our advice was not inopportune, and that it will be productive of the greatest good. In the heat of the resentment—we cannot call it real anger—which the men who waited upon us exhibited, they made demands which, to comply with, would not be honourable upon our part, and which they might have known, notwithstanding their warm expressions—we do not like to call them threats, and we heartily forgive them—would not intimidate us. With the exception of a flying report or two antagonistic to our own views, and the manner in which we put them before our readers, this is all that has been said by the carpenters against our interference. Our contemporaries, with the exception of one or two, have also, to judge by their silence upon the matter, endorsed our proposals. This in itself ought to recommend them the more to the consideration of all working men as well as to the carpenters. We have stated in our last article, that some of our contemporaries were in the habit of flattering our work-people to a degree inimical to their welfare, and our readers will now see if we have spoken the truth. A leading morning paper of the 20th ult. says, that our advice to the carpenters was an uncalled-for attack upon their conduct. "Tradesmen, we suppose," says this leading paper, "should appoint a master of the ceremonies to marshal them to their places." The inference we are to draw from this is, that it is the practice of well-ordered assemblies to employ masters of ceremonies. "Tradesmen," sneers our contemporary—for the sentence is evidently a sneer—"do not want any thing in the shape of order." "We believe," adds this would-be apologist of our wayward children, "that no meetings are

more orderly than those held by the Dublin tradesmen, the carpenters especially." Well, well, we shall not quarrel with this writer's belief, but if he had been present at the meeting to which we alluded, we fear he would be inclined to alter it. The same paper gives the carpenters, as we do, the credit of executing their work in a neat and proper manner, but by its lukewarm defence, seems to think that it is no matter what way their meetings are conducted. We would go farther than this. Although they are only "tradesmen," they ought, in our opinion, conduct and finish their meetings as they finish their work. The other paper that has taken exception to our remarks is of a sporting character, and applauds the conduct of the carpenters after a sporting fashion. "In the lack of news," it supposes, "one of the Dublin papers (is our sporting contemporary a provincial?) made an unjustifiable attack," &c., &c. Then comes the flattering expression, "these fine fellows—the carpenters—do not attend the opera or go to tea fights." We are prompted to suppose in reply to our sporting brother scribe, that it was a want of sufficient fun that caused him to pen his little paragraph apparently to soothe, while in his heart he chuckled at the idea that the "fine fellows" alluded to would not be able to detect the satire which he knew it contained. Feeling that we have always had the welfare of the sons of toil at heart, we are not afraid to repeat that the notice which we took of the meeting of carpenters was very much needed in order to warn them not to be too precipitate, and to check the younger members of the society from supporting, without reflection, the movements of those whose ideas are of the type of the stage-coach days.

THE SHORT HISTORY OF A HOUSE.*

"This is the House that Jack built."
Nursery Rhyme.

THE greatest aim of John Cheapside's life, on retiring from business in the city, was to purchase a few acres of land on the borders of some undisturbed suburban neighbourhood, within a sixpenny railway ride of London. On this plot of virgin soil he desired to build a house for himself and to cultivate a kitchen and flower garden. The retired city merchant advertised for tenders; and, in less than a week, received a score of designs and estimates from builders who acted as their own architects. Cheapside, being practical and economical through life, bought in the cheapest market, and the lowest tender was accepted, and the work commenced. The house, begun at the close of autumn, was carried on without intermission through the frost of winter, was prepared and painted in the spring, and was ready for its owner to take possession ere mid-summer. The contractor was an expeditious hand, and being bound to time, he kept faith in his agreement, and was handed back his bond. Mr. Cheapside was delighted with the appearance of his newly-finished mansion, which was embellished with a stucco front, preserved from damp by an outlying roof, supported by a series of tasteful consoles painted to match the exterior frontispiece.

A flight of stone steps ascended to the hall-door, and a series of other steps descended to the breakfast-parlour beneath. The hall-door had a porch, and the windows in front were surrounded with architraves, surmounted by a cornice, of charming proportions. The builder, who studied economy, as well as his client, by buying labour in the cheapest market, put in timber which compensated in weight for what it wanted in dimension. Sap, in his opinion, when kept in by paint, preserved the fibres from premature exhaustion, which over-seasoning was

so apt to produce. Plaster, well diluted with road-mud, formed an excellent groundwork; and the lime-putty skimming, for the external coating, was gauged in thickness according to time and atmospheric changes. In Mr. Cheapside's mansion, where paper soon succeeded this finished wall, the whitewash brush was nearly a sufficient application; and, to all intents and purposes, the thickness of the coating, in many respects, had scarcely more body than what the dried surface of a wall presents after the whitewasher has done his duty. The painting-work of the new house was done in what is called the "usual manner." The drainage of the mansion was carried out to a horse-pond, about 30 yds. in the rear; but there was an unmistakable gradient, whose downward inclined led to the source of the sewage, instead of to its supposed outfall.

Mr. Cheapside entered in on his new take in the summer of 1869; and before that day twelvemonth two of his children had died of zymotic diseases. Two servants also had sickened in that time, and were removed to a fever hospital; and his wife never knew a day's health from a month after she entered the family mansion. It was all put down to the "visitation of God." In the midsummer of 1870, the stranger who passed by the new mansion of Mr. Cheapside might see that a settlement had taken place over the hall-door and each of the windows; and if he got liberty to enter the house, he would discover in most of the rooms cracks in the ceilings and openings in all the joints of the joiners' work; he would discover the heads of the door-frames and windows out of square, and the doors sunk on one angle, half an inch or more from their top rebate. He would have found in the lower rooms the paper spewing forth a deadly ooze, and hanging, in other places, in large patches from the walls. In the back premises would be found a flooded sink, unable to get rid of the refuse-water; and if further scrutiny were deemed necessary, by lifting the pump-handle a flow of brackish water, "all alive, alive," would be had, which needed neither taste nor smell to prove its solidity.

Time passes. A visit now (1871) would show two bills in the windows,—“To be Let or Sold.” The winter's snows and frosts have nipped in twain the Roman cornices, dilapidations have set in, and gloom is everywhere apparent.

The builder still lives with a light heart, and has plenty of jobs on hand. The owner rents a better, though old-fashioned red-brick structure of the reign of Anne, farther away from the city. His wife has completely recovered from her chronic hysterics and headache, and her children are rosy and full of animal spirits.

Mr. Cheapside himself acknowledges that he is completely cured of his mania for building without advice, and adds that he has not the least pity for those who allow themselves to fall into the hands of the Philistines.

As most stories have a sequel, so has this short history of a house. The Great Metropolitan Circular Extension Railway Company are present laying down a line of railway which cuts obliquely across the garden of Mr. Cheapside's late mansion. One of the solicitors of the company, who was for some months in the secret of the line of route, purchased Mr. Cheapside's freehold at an alarming sacrifice, and the said solicitor is chuckling over his bargain and the compensation in prospective. The railway company is about awarding a proper sum to him for the great loss he is about to sustain.

Cheapside's mansion for the next twelve months will be transformed in part into a dépôt for railway plant, and refuge for navvies and their cooking utensils. Its suburban quiet has for ever departed, and shortly "a sale of building materials" will furnish the last chapter in the curious anti-climax to the sylvan dreams of John Cheapside, city merchant.

* From the *Builder*.

ARCHITECTURAL DECORATION.*

Brick and Terra-Cotta v. Stucco.—I shall commence with the most ordinary mode of architectural decoration, as exemplified in an ordinary London house. I speak more particularly of the modern houses and villas that have been scattered so plentifully of late years in and about London. What is the prevailing characteristic of all the architectural decoration (if, indeed, I can apply such grand words to such ignoble efforts)? I think there is but one answer to the question—viz., “Sham”—sham meretricious ornament, from the sham porticoes or pilasters that decorate the entrances to these miserable specimens of modern architecture to the sham stone cornice that is generally considered essential to “finish” the façade, and impart to it what is termed somewhat of an architectural appearance, as if the builder could redeem his many sins of omission by committing greater sins in the name and for the sake of ornament. I have mentioned the word “builder,” and no doubt many will answer my censure of this prevailing style of decoration by saying that in the large majority of instances no architect has been consulted, and hence the inherent badness of the design. This, no doubt is in a great measure true, and to some extent answers my complaint; but still there are many instances where architects have been consulted, and instead of doing better things have been obliged or content to follow in the same style of ornament adopted in the neighbourhood, excusing themselves by saying that they could not help it, or by asking what could they do better with so little expenditure? And here, I think lies the root of the whole matter—viz., that good design and good ornament can only be obtained together with a large outlay. Thus the majority of the building public, when they require something “done on the cheap,” either decline altogether to take professional advice, and content themselves with the cheap plaster ornament provided ready-made, or else consult some one who is disposed to humour their views on the subject, and avoid all dispute. But why good design (or what passes for such) should be limited to large buildings, and where economy of cost has not to be so carefully considered, I am at a loss to divine, and yet such is mainly the case and will remain so until the public are taught a little more art, and told that good ornament does not necessarily imply a large outlay, and, on the other hand, that compromise dressings in imitation of stone, with the addition of cheap graining and plenty of varnish, cannot possibly be termed architectural decoration in any true sense of the term. This brings me to the point to which I wish particularly to draw your attention—viz., that, however cheap the architecture, or however great may be the pressure put upon us, we should never sanction any architectural decoration whatever that is a sham, or an imitation of some material that the outlay will not allow us to employ. It would be preferable to have no exterior ornament at all, and use the money thus saved in trying to make the interior decoration more artistic. How much better would it be for the durability of thousands of the cheaply-built “eligible villas,” and for the comfort of the inhabitants, if the money expended in compromise porticoes, string-courses, architraves, cornices, balustrades, and, in fact, all the ingredients of compromise architecture, were saved, and expended instead on thicker walls, stronger timbers, and joinery that does not fall to pieces a few months after it is fixed. I am convinced that it would be far better for the pockets of the landlords, the comfort of the tenants, and the artistic appearance of our towns, if every bit of this class of ornament were to be swept away, and we could return in some measure to the somewhat primitive but more honest mode of building of the seventeenth and eighteenth centuries. Art critics and others may laugh at what is termed “the Queen

Annean revival,” but, for my part, I am truly rejoiced at the same, feeling convinced that it is a healthy sign, and marks a change that, I hope, is dawning upon the domestic architecture of the country. I am convinced that the architects who are adopting this style of building can never penetrate the horrid monstrosities of architectural decoration that offend our eyesight in almost every street in modern London. The best architectural ornament is first of all good design and proportion, and secondly, good workmanship and materials. If we have not these ingredients, no amount of decoration can atone for their absence; it is like trying to patch up a picture that is badly drawn and out of perspective by daubing it over with colour. We may go on decorating and laying on endless ornament, but after all our expenditure and trouble the building retains all its bad features, which cannot be concealed. Supposing, however, that the building is well designed and the various parts well balanced. What kind of decoration should we employ? In a brick building I think nothing but brick ornament or some like material, and in saying this I cannot be accused of giving too narrow a field for architectural ornament. We have now bricks of all shapes and colours, mouldings of every conceivable form, and terra-cotta ornament can be manufactured to suit every style and design. Surely here is enough variety of ornament to suit every taste—colour and form of every kind, and all made from the same material, the native clay. Let us abolish that villanous compound called Portland cement, and never use it ornamentally except as a ground-work of painting and frescoes. I am persuaded, for many reasons, that for the large majority of buildings, and particularly in London, brick and terra-cotta are the only decorative materials that can be used with any degree of success. Of course I do not wish to exclude the use of stone, but still I am of opinion, considering the nature of our climate and atmosphere, that stone should only be used as an exterior decorative material (I speak of carving, sculpture, and mouldings) with the greatest care and precaution. I will tell you why I have set my heart upon brick and terra-cotta ornament—simply because it appears to me to be the only material that possesses what I venture to think are the chief points in architecture decoration—viz., colour, durability, and economy of cost. And, firstly, as to colour. I hold that no decoration can be considered successful unless it is accompanied by colour. Colour is as essential to decoration as are light and air to our health. What, I ask, is the main difference between our large towns and those of Italy, France, and Germany? Not the style of the architecture only, for we possess as fine buildings, wide streets, and public monuments, as almost any country in the world; but in my opinion it is the lack of colour in our decoration, and the absence of all picturesqueness in our architecture. As to the latter element, I do not speak now, but it is mainly to advocate the more frequent use of colour in our buildings that I have offered to read this paper. We here foreigners say that London is so gloomy, dirty, and always in a state of fog. We architects cannot so much help the fog, although I think even that complaint might be greatly lessened by more stringent regulations with respect to the consumption of smoke. Much may be done by us, however, to render our streets less gloomy, by the more frequent use of colour, and thus in some measure removing the uninviting appearance caused by our sooty stone buildings, cold gray brick, and grimy Portland cement houses. Our climate prevents us employing frescoes as an exterior decoration, but we have other modes of obtaining colour—viz., from bricks, tiles, terra-cotta, and mosaics, and why should we hesitate to use them?

Durability and Cleanliness.—I believe it is generally allowed that brick is about the most durable material that can be used for building purposes, and it is also the only really fire-resisting material, stone, as we know, being apt to crack and split under the

influence of great heat. We have, therefore, another inducement for employing ceramic decoration. I would also say a word as to cleanliness. Good terra-cotta does not change colour like stone or Portland cement, but always retains its brightness of tone, as we may see by the numerous examples of terra-cotta ornament in Italy, mostly upwards of three centuries old, or by the more ancient Roman brickwork, which retains its colour almost intact to the present day. It can also be easily cleaned, and no amount of rain, cold, or heat can damage it to any extent.

Economy.—Terra-cotta is also, I believe, the most economical mode of decoration (I am not speaking now of elaborate ornament), certainly far cheaper in every way than Portland cement or stone carving; and I am sure if its advantages were more generally known, and its use more extensively advocated, the cost would soon become much less.

Tiles v. Slates.—And while speaking on the subject of colour, I must lament another great change that has taken place in our mode of building during the last half century; I allude to the introduction and now almost exclusive use of slate as a roofing material, in lieu of tiles. I venture to think this a reason for genuine regret. The architecture of London is so generally cold and monotonous that we can ill afford to lose the warmth and variety of colour to be derived from tiles. No doubt there are reasons for the substitution of slate, such as their cheapness and comparatively light weight, but these I cannot consider as sufficient reasons—certainly not the latter, it having led to the reduction of the size of the roof timbers, and consequently to weakness in construction. No doubt with our present low-pitched roofs slate is a safer covering than tiles, but this is only an additional argument for the re-introduction of roofs with a higher pitch, that would be visible from below, covered with the old-fashioned tile.

Ordinary Present Day Brickwork.—I cannot conclude these remarks upon brick and terra-cotta ornament without saying a few words upon the inferior class of brick, both with respect to colour, form, and manufacture, that is now extensively used in building under the term of “stock-brick work.” I am convinced that there has been a great falling off in this respect since the commencement of this century, and I fear that the introduction of machinery for the manufacture of bricks will not tend to improve matters. I think you will all agree with me that much improvement is required in our brickwork, not only in the quality and colour of the bricks, but also in the mode of laying them. No one can fail to notice the great difference between the brickwork of the seventeenth and eighteenth centuries and that of our time. Of course, so long as the pernicious practice of using “facing” bricks (or that of building in the shortest possible time with the cheapest bricks, and then covering the whole up with cement) continues, we must not hope for much improvement. M. Gruner, in his elaborate work on the terra-cotta decorations of North Italy, speaking with regard to brickwork in England, says:—“In England brick was in former days modelled and cast into artistic and ornamental forms, but whether in consequence of the high duty imposed upon brick, and the consequent limitation as to size and shape, or from the influence of the contract system of building, the legal English brick has become by degrees the least durable and most unsightly in use in any country, and has hence produced that dislike to its colour and material which proceeds not from its intrinsic ugliness, but from association of the imagination with ideas of coarseness and meanness of construction.”

Architectural Decoration in Stone.—Passing on from brick and terra-cotta ornament, let me now say a few words as to the various means of decoration in stone, marble, granite, &c. I propose dividing the subject under two divisions—viz., Sculpture and Material.

Sculpture.—This class of ornament includes the decorative treatment of stone, such as we see in quoins, rustications, mouldings of

* By Mr. C. Aldridge. Read before the Architectural Association.

various degrees of intricacy and detail, carving of all kinds (from the elaborate detail of the Corinthian or Composite capital to the more simple and perhaps more effective detail of the thirteenth century), and, finally, the sculpture of the human figure and all kinds of animal life.

Quoins.—This mode of ornament should, I think, be adopted only under particular and special circumstances, and certainly *never* in artificial stone. I have seen instances, and particularly abroad (in Florence and Venice), where rusticated quoins and basements have been used most successfully to give scale and grandeur to the architecture; but we must remember that in these instances the buildings are very extensive, and the stones employed are also very large. I would venture, therefore, to say that as a rule rustications should not be used except in buildings of a large and important character, where the extra-sized stones are not out of scale, nor the extra labour on the material apparently needless extravagance. I would add that the use of stone quoins on houses that are attached on each side is simply nonsensical and a sham.

Mouldings.—The employment of mouldings as a mode of architectural decoration dates, I believe, from the earliest periods, but I must ask you to excuse the historical portion of the subject, and allow me to draw your attention solely to their use as a mode of architectural decoration. Firstly, what is the theory of their use? Twofold, I think—viz., to get a certain degree of light and shade in parts where the architecture would be bald and flat, and secondly, to give a lighter and more elegant appearance to certain portions of the building. Where should mouldings be employed, then? Firstly, as a framework to enclose certain portions of the façade, as round windows, pilasters, and panels; secondly, in large blocks, which, projecting from the general face of the work, would otherwise appear heavy and cast too unbroken a shadow; as a framework round windows and arches generally, the object being chiefly to more clearly define the line of opening, and remove what would otherwise be a sharp and unpleasant angle—a bold moulding with hollow is generally sufficient to answer the purpose, and all intricacy is to be deprecated, as being useless labour, and in London only affording opportunity for the premature decay of the material. The treatment of mouldings differs in various countries, but I think we should study their use in countries enjoying a climate more similar to our own rather than in Greece or Italy, where the brighter atmosphere and warmer climate allow more elaboration and detail. I would mention an instance where I venture to think that the use of intricate and delicate mouldings on the exterior has proved a mistake. I allude to the Houses of Parliament, where I cannot help thinking that the stone employed could hardly have failed to such an extent if a bolder and more simple treatment of sculpture had been adopted. At Henry VII.'s Chapel, Westminster, the stonework had to be entirely restored some fifty years ago, while, on the other hand, we are still able to trace the detail of less elaborate mouldings in buildings of the thirteenth and fourteenth centuries, and of even earlier date. With respect to the design of mouldings, I need not say that they have to be specially considered with respect to their position, and that a base to a column or moulding to a string, which may suit very well for a height of say 10 ft. from the eye, will have to be materially altered when the same is three times that height; this, although the very A B C of design, is hardly, I think, paid the amount of attention it deserves.

Carving.—Passing on to more elaborate decorations in stone, let me say a few words about carving applied as an exterior ornament, apart from figure sculpture; and before I speak of the use of this beautiful art, I should like to say something as to what I consider its *mis-use*. Carving in stone, on account, I suppose, of the extra cost in labour, is confined chiefly to buildings of a large and

important character, and we seldom see it employed in ordinary house building. It is therefore an expensive luxury, to be indulged in only by the rich, and those who would seek to enjoy the same without the expense must be content with imitations in that convenient material, stucco. But is not the use of carving grossly misapplied in the majority of instances? We have only to take a walk through the city to witness the lavish and injudicious use that is constantly made of carving. Elaborate stone cornices, with richly-carved brackets; delicately-carved capitals on polished granite shafts, which seem too fragile in constitution to brave the trials of our climate; richly-carved doorways, with magnificent consoles and beautiful garlands of flowers closely copied from Nature—these are some of the rich architectural luxuries that can only be indulged in by the few. And yet I think it would be a good thing for art if some heavy tax were to be imposed by Government on all exterior stone carving; we might then see a more economical and judicious use of the same, and perhaps a higher class of design and workmanship. I am of opinion that carving, as applied to exterior decoration, should only be used with the greatest caution. All these elaborately-carved capitals, bunches of flowers, &c., that we so constantly see, are nothing but so much waste of time and material. How much money might be saved for interior decoration if half this questionable ornament were abolished! I should like to see good moulded capitals substituted for the carving, and terracotta or mosaics in other places where carving is now applied. The only mode of carving that I think applicable for exterior ornament is flat ornament with but little relief, such as we see in Early Classic and Romanesque examples, and more particularly for capitals where there is any real or imaginary weight to be supported. No deep under-cutting or great projection should be allowed, as any quantity of beautiful and effective carving can be obtained by using half the ordinary amount of time and labour. All stone carving, particularly for exteriors, should be conventional, and never naturalistic, as it is neither desirable nor even possible to copy natural forms with exactness. And, finally, let there be some *meaning*, something to interest and attract our attention, in all ornament. It would be better to omit it altogether than to heap on a lot of meaningless decoration simply for the sake of laying out so much money and getting what is termed an "ornamental façade."

Sculpture.—These remarks on carving will necessarily apply with even greater force to the use of sculpture. Figure sculpture is a very important and useful adjunct to architectural decoration, and gives great importance to a building when judiciously placed and properly executed, but nothing should be more carefully avoided than an injudicious use of bad sculpture on the exterior of a building. I think that as a rule figures should always be placed in niches specially designed for them; by doing this we obtain a certain amount of protection from the weather, a background for the figures, and a far better play of light and shade than if the figures were placed without apparent thought on the summit of cornices, balustrades, porticoes, and pediments, where they always look unsafe or uncomfortable, and if the figures are partly nude, wretchedly cold and unprotected, to say nothing of the perspective effect of sculpture thus placed, which I am of opinion is seldom agreeable. We must all have noticed the singular appearance of the otherwise effective sculptures on the pediments of St. Paul's Cathedral, as viewed from above, plastered all over with lead and iron: this is a mistake which I think should never have been committed; certainly the Greeks or the Mediæval sculptors would never have made so gross a blunder.

Coloured Materials.—In the use of coloured materials, such as some of the sandstones, marbles, and granites, we have great scope for architectural decoration; but yet, on the whole, I hardly think that a judicious use has

been made of these materials. The employment of marble for exterior decoration is perhaps questionable, on account of the deleterious character of the atmosphere and the expense of the material, yet I am inclined to doubt whether some of the harder marbles, such as the Carrara and some from Sicily, are not at least as durable and capable of resisting the effects of the London smoke as some of the building stones so extensively employed. Much architectural effect and colour might be gained by the use of marble or coloured stone in conjunction with brick, somewhat after the character of the well-known façade of the Ducal Palace at Venice, or that of many of the buildings of Verona, where brick and marble have been used in alternate horizontal layers, with, I think, considerable success, giving much play of colour and great picturesqueness to the architecture.

Painting.—In conclusion, let me say a few words on the subject of painting. I mean ordinary house decoration. Much might be done, I think, to work an improvement in the mode adopted in painting the external wood and iron work—a matter but too often left to the individual taste of the occupier or the tradesman. I have noticed many good designs in a great measure spoilt by the abominable way in which the painter's work has been executed. In the first place, all graining, at least on the exterior, should be abolished, and only flat tints allowed. A great saving in labour and expense would be effected, and another sham got rid of. The doors, if of deal, should be painted some neutral tint, with the mouldings, perhaps, picked out in a darker tint of the *same* colour; but it would be far better to employ the money saved by graining and varnishing in getting a better and more lasting material than deal for external doors, such as oak, teak, or chesnut, which would not require to be painted at all, but merely coated over with boiled oil. We should thus obtain a far better effect for our doorways than all the misplaced art of the grainer can supply. Window frames and sashes should invariably be painted white, or some lightish colour, on the exterior, in order to throw up the black of the glass, as it would be a great artistic improvement if the sashes and bars could be of greater thickness. We may diminish the number of divisions, and increase the size of the glass, but the larger the square of glass, so much thicker in proportion should be the sash and frame. With respect to the ironwork, it should, I think, be always painted some bright colour, such as Venetian red or chocolate, and never the dirty greens, browns, and grays we see so constantly used. I should like, if time allowed me, to say a few words with respect to the design of our domestic ironwork, but the subject has been so often attacked, and the case seems so hopeless of improvement, that I am loth to trouble you on the subject this evening.

ART-UNION OF IRELAND.

THE annual meeting of the subscribers of this association was held in the Council-room of the Royal Hibernian Academy, Lower Abbey-street, on the 19th ult., for the purpose of receiving the report of the committee, and for the distribution of prizes.

T. MAXWELL HUTTON, Esq., J.P., occupied the chair.

Mr. Henry E. Doyle, hon. secretary, read the following report:—

"The total subscriptions for the current year amount to £151 12s., of which the sum of £105 is available for distribution in prizes. The expenses have been £45 10s.—namely, for printing and stationery, £4 10s.; advertisements, £7 10s.; postage and carriage of parcels, £4 10s.; assistant secretary, £20; commission to local agents and collector, £5 10s.; incidental expenses, £3 10s.; leaving a balance in hands of £1 12s. While your committee has reason to feel gratified for the steady adhesion of so many friends to your association, yet they cannot but regret that the results as a whole have fallen far below the reasonable expectations of the founders of the Art Union of Ireland, and the actual requirements for the encouragement of art in

Ireland. Your committee has, by strict economy, been enabled to allocate nearly three-fourths of the entire amount of subscriptions in prizes; and having adhered to the principle of giving no prize less than £10, have divided the sum at their disposal as follows:—One prize of £30, one of £20, one of £15, and four of £10 each. Your committee cannot conclude this report without expressing the deep regret which they feel for the loss of their late lamented president, Sir Maziere Brady, to whose liberal and persevering support this institution is deeply indebted. Ever ready to give his time and labour, as well as more material assistance, to all efforts for the support and development of art in this country, he showed an example which it is to be regretted there are so few to follow; and his death has left a gap which it will be difficult to fill."

On the motion of Mr. J. Ball Greene, seconded by Mr. B. C. Watkins, R.H.A., the report was received and adopted.

It was moved by Mr. Chas. Brien, seconded by Dr. Quinlan, and resolved—

"That the retiring vice-president, Viscount Southwell, and five members of the committee—namely, John Bagwell, Esq., D.L., M.P.; John C. Bloomfield, Esq., D.L.; Robert Callwell, Esq.; Major-General George T. Colomb; and Sir Thomas Deane, R.H.A.—be re-elected."

The drawing of prizes took place, with the following result:—No. 5, share No. 563, prize, £10, William MacDougall, Howth; No. 7, share No. 484, prize, £10, Sir F. W. Brady, Bart., Lower Leeson-street; No. 3, share No. 666, prize, £15, James MacLennan, Stephen's-green, North; No. 1, share No. 239, prize, £30, J. T. Gilbert, Blackrock; No. 6, share No. 311, prize, £10, W. C. Kyle, LL.D., Clare-street; No. 2, share No. 570, prize, £20, J. R. Corballis, LL.D., Clonskeagh.

THE ROYAL IRISH ACADEMY.

THE concluding meeting of the Royal Irish Academy for the present session, was held at the Academy-house, Dawson-street, on Monday evening. The chair was taken by the president,

The Rev. Professor JELLETT.

The first paper read was one by Dr. G. Sigerson, in reference to the remains of fish in the alluvial clay of the river Foyle. The specimens of bone which he produced were found some time ago, at a depth of 20 ft., in the district of the river, where workmen were engaged in raising clay for the manufacture of bricks. They were at first thought to be the skeleton fragments of a bird, but upon examination Dr. Sigerson found that they were those of a fish; and, after careful investigation and comparison with the formation of osseous fishes, he found they were those of a cod-fish, which must have come up with the tide at a time when the whole district was under water. This discovery of organic remains was all the more remarkable in this place, inasmuch as it was thought at one time that no such remains existed in the locality, or had ever been found there. But even at present, cod-fish were known to come up the river as far as Derry. The river, however, was a lake two or three hundred years ago, which was shown partly by documentary evidence of that date, partly by the fact that itself is locally known as "lough"—a thing unconnected with every other river in Ireland; and, finally, it was shown by the fossil remains now brought to light.

The Rev. W. Reeves, D.D., read the first portion of a paper on the topography of the county Anagh. He said that it was a loss that in this country, though there existed abundant materials for the work, there was no county history written except for three of these divisions of the kingdom, while in the case of boroughs, though not of so much importance, the work was not attempted except in two instances. The local legends had, in the North especially, nearly all disappeared with the displacement of the people to whom they belonged, and even the names of places were gradually becoming obliterated for want of attending to the ancient records in existence, and from the rapid dying out of the language in which they were called, and of the people who named them. For the cul-

tivation of the antiquarian studies to which he alluded, there were many sources from which information could be drawn—the old annals, books of pedigrees, registers, records, ancient maps, &c. There were two maps of Armagh made in the time of Elizabeth, one of which was still preserved in Trinity College; Speed's map was made out in 1610, besides various other maps, together with those known as the Ordnance maps, both of that period and of various dates since. Some of these, of the date 1609, were of the highest accuracy and of the utmost interest and importance in referring to the confiscation and apportionment of Ulster.

Mr. G. Johnstone Stoney, M.A., read a paper on a new form of spectroscope, which they found it necessary to manufacture in order to pursue their investigations regarding the depression of light beyond the limits at which the spectroscope lent them by the Royal Dublin Society compelled them, from its restriction of power, to stop. Mr. Stoney entered lucidly into details of the beautiful instrument they had in contemplation.

Mr. W. M. Hennessey had a paper on the tale of the "Bruidin da Derga," which forms one of the principal episodes in the ancient Irish MS. known as the "Lebor na h'indhri" (Lower na heeri), literally "the book of the brown (cow)," because the MS. was covered with the skin of St. Ciaran's cow. The particular tale referred to related to the ancient celebrated "Bruidin (Breen) da Derga," Derg's Palace, on the banks of the Dodder, near this city. About the year 150 A.D. this palace was stormed by sea-robbers, and its inmates put to the sword. No trace of the building now remains, yet its name lives on to this day in the proper name, Bohernabreena (the palace-road), applied to the public way which runs near the place. The paper was postponed.

THE WORKING OF THE LAND ACT.

At the Kilmainham Land Sessions this week, the following case was heard:—

Maurice Butterly v. Sir C. C. W. Domville, Bart.—The tenant, who held a farm at Santry under lease for 99 years, claimed from his landlord a sum of £925 12s. 9d., as compensation for improvements, and for his away-going crops, as follows:—Erection of stables and store, £30; erection of pump, £25; erection of steward's house, £70; drainage of 8a. 2r. 30p., £43 8s. 9d.; making 30 perches of a new avenue, £15; making 30 perches of boundary ditch, £7 10s.; manure, 50 tons, £15; unexhausted manure, £100; 9 acres wheat, £117; 3a. 0r. 34p. wheat, £41 15s. 3d.; 5 acres oats, £45; 8a. 2. 30. oats, £78 3s. 9d.; 1a. 3r. 10p. cabbages, £72 10s.; 1a. 2r. 25p. white stone turnips, £66 5s.; 1a. 2r. 35p. early Dutch turnips, £68 15s.; 1a. 3r. 5p. potatoes, £71 5s.; 3r. 32p. potatoes, £38; 2a. 2r. 20p. Italian rye grass, £21. The landlord, Sir Charles Domville, had served a notice disputing the items of erection of stables and store and erection of steward's house, on the ground that the claimant was bound by a covenant in his lease to erect those buildings, and leave them at the determination of his tenancy, and disputing the amount charged by the claimant in respect of them in the event of these items being allowed by the chairman. He also disputed the items respecting the drainage and the making of an avenue; and, while admitting the right of the tenant to claim in respect of the pump erected and of the manure heap and unexhausted manure in the land, he disputed the amount charged for these items as being excessive. He also disputed the valuation put by the claimant upon the growing crops, and claimed the option given him by the Act of Parliament of retaining them or paying their fair value when ascertained. He likewise claimed damages from the tenant for his breach of the covenant in his lease, which bound him within a specified time to expend a sum of £1,000 in building a dwelling-house and offices, under penalty of forfeiture. It appeared that the claimant got possession of the land in 1865, under an agreement for a 61 years' tenancy, with a clause binding him to expend £500 on buildings. This was in 1869 determined by mutual consent, and in the month of March in that year a lease was executed by Sir Charles Domville to Mr. Butterly for a term of 99 years, with a covenant binding Mr. Butterly within two years to expend a sum of £1,000 in erecting a suitable dwelling-house and offices. The time was allowed

to elapse, and, the lease having been forfeited, the present claim was instituted by the tenant.

The Chairman expressed a difficulty as to the propriety of taking evidence at present regarding the value of the crops. The away-going crops that the tenant was entitled to were not the crops in their present state, but the crops at maturity. Evidence given now as to their value at maturity must necessarily be of a speculative description. The words in the act of Parliament giving the tenant a right to take "all his away-going crops" were not very clear.

Mr. Carton, on behalf of plaintiff, admitted that as the lease was for a longer period than 31 years, he could not substantiate his claim in respect of the drainage, unless he could prove that it was, in point of fact, a reclamation of waste land.

Mr. Battersby, on behalf of Sir Charles Domville, submitted that Mr. Butterly's claim was unsustainable in the first instance, so far as it related to works done before the date of the lease—March, 1869; for it was with that lease his title began. The Act of Parliament gave a tenant a right to claim for improvements of a particular kind effected by him or his predecessors in title. The tenancy in this case commenced in March, 1869, and the previous tenancy by Mr. Butterly himself could not be regarded as that of a predecessor in the title, since it was under a different title altogether that he then held the lands. As against the alleged improvements, he relied on the covenant in the lease which bound Mr. Butterly to build, and required the tenant, on the termination of his tenancy, to leave the lands "well and sufficiently manured."

The Chairman gave plaintiff liberty to remove his crops, Sir C. Domville having declined to exercise his option of taking them at a valuation. He also gave him liberty to remove a large quantity of manure and a moveable stable; disallowed him the cost of erecting a steward's house, as being done under a covenant in his lease; and allowed various sums, amounting altogether to £159 10s., upon other portions of his claim. He also gave plaintiff his costs.

SOAP AND ALUM FOR WATERPROOFING WALLS.

THE following is taken from the local *Chronicle's* report of the proceedings at a special meeting of the Coleraine Board of Guardians:—

The chairman read the notice convening the guardians, to take into consideration the propriety of acting upon the recommendation of a committee previously appointed to report upon the state of the walls of the Fever Hospital, which were said to be damp. The committee had recommended that the walls should be coated with cement; but requested that the execution of the work would be postponed from that time (November) until the last week in May, that the moisture in the walls previous to their being pointed with cement, which was done twice, might have time to dry out.

Mr. Ellis, having quoted the minute upon the matter, said that in consequence of that report having been approved of, the consideration of the subject had been postponed until the present time. Anticipating the inquiry which he knew would be made, he had visited and examined the hospital about a fortnight ago. There was no other member of the committee in attendance, and therefore no formal report had been made. There was only one patient, who was almost convalescent, in the hospital at the time; and, as there had been very few at any period for the last twelve months, little damage could be done even if the walls had been damp; because, when the wards were examined in November, the committee recommended that the beds should be removed from the walls, through which it had been found damp had penetrated. When he last visited the hospital he found that the discoloration caused by the damp remained from the water which came through after the great storm in November last year; but otherwise the building was in an excellent state.

Mr. Morrow—Have any of the patients suffered from the damp?

Mr. Ellis—I am quite sure they have not; and there have not been more, on an average, in the hospital than *three* for the last twelve months.

Capt. Stronge said on the last occasion upon which the subject had been brought up, he had submitted a receipt for waterproofing walls, which he had obtained from the architect to the Drapers' Company, when he was over here with the deputation of the Worshipful Company of Clothworkers. It was as follows—"To waterproof stone, brick, or tiles, 1½ lbs. white soap to a gallon of water, used hot, with a new brush; 1½ lbs. alum to a gallon of water put on the following day with a clean brush." As it would cost very little, and had been used with effect in other places, he thought it might be well to try it. What had led to

Mr. Williams mentioning the matter was that the deputation were inspecting the Model School, upon the walls of a portion of which coal-tar had been used to prevent damp penetrating the building; and he said he could have given them a remedy quite as effective, and which would not have spoiled the appearance of the walls.

Mr. Ellis thought the experiment would be worth trying. There being no cement except what had been placed between the joints, the walls of the hospital presented a first-rate example to test the matter. Indeed, he believed the damp got in through the stones themselves, as they were of a porous description.

Mr. Lyle said it was the opinion of the architect to the Clothworkers' Company that there was really very little good building stone in the district. Upon good stone-work the rain stood in drops; whereas in the buildings here generally the damp spread over the stone.

After a few further observations by several members of the Board,

Capt. Stronge moved, and Mr. Lyle seconded, a motion to the effect that the solution of soap and water should be applied to the exterior of the walls of the Fever Hospital, the work to be carried out under the supervision of the Master of the Workhouse and the Visiting Committee.

Mr. Ellis said the Guardians ought to be very much obliged to Capt. Stronge for the trouble he had taken in having the attention of the Guardians directed to such a cheap way of protecting the building, as, from the character of the man, and the experience he must have had, it was likely to be of service.

A Member—We have had a great many costly experiments about this house, and it will be pleasant if at last we have come to the time when we shall have those that can be tried cheaply.

Mr. Adams—It will be a very useful thing if it prove effectual.

Mr. Ellis—There will not be a country gentleman's house in the district but will be coated with it!!

The motion was then put and passed.

CORRESPONDENCE.

PROPOSED ADVANCE OF WAGES.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having been considerably astonished at the statement you made in your issue for June 15th, under the above heading, relative to a meeting held by the Regular Body of Carpenters of Dublin, at their house in Gloucester-street; and, as it was a most wanton attack on that body, I beg to say a few words on the matter.

It would be naturally surmised that a journal holding the position which the IRISH BUILDER does, would, at least, see that no "garbled" report of any meeting would enter its columns, much less a tissue of statements (to use the mildest phrase) very far from true. And, were it not for the fact that it appears in editorial type, a person would at once come to the conclusion that some petty-minded, jealous individual penned the production, and the wonder is, that you disgraced your columns by its insertion.

The meeting referred to was, as you remarked, convened by circular, and the question arises, was there one sent to you? However, be that as it may, one would imagine the Editor of a journal such as the BUILDER would give the workingman at least a fair field and no favour. Such is not the case in the present instance, and it is to be hoped you will, on reflection, give a corner of your next publication to this denial of the truth of the statement complained of. The meeting was called to discuss the advisability of asking an advance of 6d. per day on the present rate of wages of the Regular Carpenters of Dublin. It was a most orderly meeting, and an unanimous one, considering the large amount of members present; and surely when any reasonable man compares the position of the carpenters in relation to the other trades of the metropolis, he cannot fail to see the justice of their demand, for, leaving the present high price of the necessities of life out of the question, he must expend a considerable amount each year on tools, and on books necessary whereby he may obtain skilful and thorough knowledge of his trade. Other trades have not to do this; indeed with the proposed advance he will be scarcely as well

off as his fellow-tradesmen in the building and other trades. Many employers have expressed their willingness to grant the advance, and, please goodness, all will see how perfectly fair and just is the demand. If any man is deserving of his hire, surely a man who has to work with his brains as well as his hands deserves it, and provide himself with tools, &c., into the bargain.

In conclusion I will just ask you to read the report complained of, especially that portion referring to Mr. McDonald's address. In it you will see anything but a true statement of the facts, for the address was a plain, simple, and logical statement of the grievances under which the Regular Carpenters labour, and recommended itself to all. It was plain, blunt, and honest, like himself—a child could understand it—so it is reasonable to premise, it contained no "Words of learned length and thundering sound," to quote a phrase of yours.—Yours respectfully, J. D.

Gt. Brunswick-street, Dublin.

[The above communication reached us just as we were going to press. We willingly give it a place, and thus allow the writer's views to have full publicity. We do so the more, as we promised the deputation that our columns should be open to them for explanation of matters upon which they say we do not coincide with them. It is matter of regret that the name of the writer is not given at the end of the letter. We may take the opportunity of mentioning that with great difficulty we succeeded in procuring a copy of the "evening edition" of a morning contemporary of Monday last, in which appeared a letter bearing the signature "Bernard Gaffney." We do not intend to make any remarks on it; what we say in another part of our present issue must suffice for all.—Ed. I. B.]

We are informed that the body of "Regular Carpenters" are to give their employers, the "Regular Builders," notice this evening that unless the advance of 6d. per day is guaranteed to them, they will not resume work on Monday. The order is signed "Bernard Gaffney, chairman; P. McDonald, secretary."

The "Regular Slaters" have issued notice to their employers that after the 10th instant they will demand an increase of 6d. per day to their wages. The "Regular Plasterers" have followed suit.

BUILDING WORKS IN ROSCOMMON.

THE following works are in progress by Mr. Michael O'Farrell, builder, Roscommon:—A Roman Catholic chapel at Clover Hill—cost about £700. A town residence for James Murray, Esq., merchant, Roscommon—cost, £500. A steward's house and rent-office at Mount Talbot—cost, £278. A villa residence (from plans by the builder) for A. O'Connor Eccles, Esq. (*Roscommon Messenger*)—cost, £500. It is in contemplation to erect a manse house at Roscommon, from plans by Mr. Murphy, Mullingar—estimated cost about £500.

MISCELLANEOUS.

WORKMEN'S EXCURSION.—On Thursday, 8th ult., a number of the operatives employed in the factory of Malcomson, Brothers, at Portlaw, enjoyed an excursion on the river, every facility being afforded by the firm for their conveyance. Attended by their band, they embarked at a place called Rockett's Castle, accompanied by the respective managers and officials. Having arrived at Waterford, they changed steamers, and departed for Ross, where, having spent a few hours in viewing the town and suburbs, they returned home, having made a trip of 22 miles amid scenery ever varying, and beautifully diversified. It is cheering to reflect that in this and the surrounding districts, those to whom labour is a necessity, have only to apply at the factories to obtain regular and remunerative

employment, suitable for different ages and capacities, and for both sexes. How improved the condition of our people would be if the example so nobly set by this firm were more generally followed by capitalists in developing the resources of the country.

A new Presbyterian Church at Carlingford, Co. Louth, was opened on Sunday, the 18th ult. The material employed is granite in irregular courses, with limestone dressings. The windows—by M'Weeney of Dublin—are filled with cathedral glass. Sitting accommodation is provided for about 150. Mr. Thomas Browne, a local builder, was the contractor.

WONDERFUL SHEET OF IRON.—At the Upper Forest Tin Works, near Swansea, the Messrs. W. Hallam & Co. have just rolled the thinnest sheet of iron ever produced. The sheet is 10 in. by 5½ in. in surface, and weighs but 20 grains. It requires 4,800 such to make an inch in thickness. In the 1851 Exhibition, the Americans sent a specimen of "Iron paper," a thousand pieces of which were required to make an inch. This has been gradually exceeded by our tin-plate iron makers until the above remarkable result has been obtained.

ROYAL DUBLIN SOCIETY—SCHOOL OF ART.—This school has lately received from the South Kensington Museum three valuable drawings, consisting of a water-colour landscape by David Cox, and a street scene in Portugal by Holland; the third is a very fine study in oil of fishing boats entering harbour, by Jacob. These works are lent for a limited period, and are intended chiefly for purposes of study. It is, perhaps, not generally known that this school possesses a very valuable collection of specimens for landscape practice, many of them by the most eminent masters. It is needless to observe how great is the advantage students enjoy in having the works above alluded to, many of which have been collected at a very great cost.

The foundation-stone of the new Theatre in South King-street, of which Mr. Phipps, of London, is the architect, and Messrs. Meade & Son contractors, is to be laid this day by the Lord Mayor. It is expected to be finished by November next.

THE ROYAL SOCIETY'S NEW TELESCOPE.—The late Benjamin Oliveria bequeathed a legacy of £1,500 to the Royal Society, to be expended upon such a scientific object as the council of the society should deem proper. The council, after due consideration, determined to adopt the suggestion of Dr. Robinson, of Armagh, and purchase a large astronomical telescope. The council made up the sum to £2,000. Estimates were sought from several English and Continental instrument makers, and the result was that the work of constructing the telescope went into the hands of Mr. Grubb, of Dublin, who was then completing the large reflector for the Melbourne Observatory. The telescope decided upon, and now completed, is an equatorial reflector of 15 in. aperture. In explanation of these technicalities, it is to be remarked that a refracting telescope is one in which the magnification of the object under view is effected by refraction through a lens—the object-glass; while in a reflector this magnification is effected by a concave speculum. The term "equatorial" defines the manner of mounting the telescope, of which it will be sufficient here to say that it provides for a continuous motion of the instrument by the aid of clockwork, so that the star, or other object under study, is kept constantly in the field of view, the telescope following the star, from rising to setting. The size of the object-glass, 15 in., is imposing. Until within the last two or three years there were but two glasses of such a size in the world: one was at the Russian Observatory at Pulkova, the other was in the United States, at Harvard College. Lately, however, attempts have been made to surpass considerably this diameter; Mr. Cooke, of York, having at a great cost—borne by Mr. Newall, of Gateshead—attempted and accomplished the working of an achromatic lens 25 in. diameter, and Mr. Buckingham having recently made one of 21 in. diameter. As yet we have heard of no trials of these glasses which could determine how far the inconceivable difficulties of figuring larger lenses have been overcome. The Royal Society's object-glass is remarkable for the shortness of its focus, which is only 15 ft. The design of this shortening is to secure great concentration of light—a principal intended use of the instrument being for the spectroscopic analysis of the light of the fainter stars and nebulae. By the large area of the lens a great amount of light from any object under view will be grasped, and by its shortness of focus, that great amount will be condensed upon a very small space, and thus great brilliancy will be secured in objects of sensible size, like planets or nebulae; for stars it is of no importance, since a star appears but as a point in any telescope.

THE DUBLIN AND WICKLOW RAILWAY.—A most important improvement is now being effected on the line of railway from Westland-row to Kingstown, and rendered necessary by the daily increasing traffic. Heavy double-faced steel rails are being laid down on the up and down line, and for this object large numbers of workmen are engaged from twelve o'clock at night until six in the morning. The line at Bray Head has been altogether diverted from its old course, and now runs inside the wooden bridges which spanned the ugly and dangerous chasms of "The Head." This work has been accomplished with much labour, but it has resulted in removing a constant cause of annoyance and of public insecurity; and the line round Bray Head is now as safe and as secure as any part of the railway from Dublin to Wexford. The passages from the jetty level to the Kingstown station are being all covered with a flooring of patent asphalt, which presents a surface as hard and even as if it was composed of one huge slate flag. The platforms are being newly laid down in patent brick. All the works now in progress are being most effectively carried out under the orders and supervision of Mr. Smith, the company's engineer-in-chief.—*Freeman.*

ROAD STEAMERS.—Lord Dunmore has introduced a Bill into the House of Lords to remove the restrictions imposed by the Act of 1865 on the use of steam engines on the common roads, and to revert to the more liberal Act of 1861. It is stated that goods can now be regularly carried by means of Thomson's road steamers at less than half the cost of horses, and both the manufacturing and railway interests of the country (the latter being involved to the extent to which the road steamers could be introduced as feeders) demand at least the removal of such regulations as can be shown to be useless and mischievous.

"THE FATHER OF TELEGRAPHY."—The bronze statue of Professor Samuel F. B. Morse, the father of telegraphy in the United States, was unveiled on the afternoon of June 10, in the presence of a vast assemblage, at Central Park, New York. Governor Hoffman, of New York, presided, and a large number of representatives from telegraphic organisations in all parts of the country were present. The statue was unveiled by Governor Claflin, of Massachusetts, amid music and cheers, and the inauguration address was pronounced by William Cullen Bryant. The Hon. A. Oakey Hall, Mayor of New York, received the statue on behalf of the city. Mr. Cyrus W. Field read telegrams from Governor Randolph, of New Jersey, and from Mr. Hamilton, chairman of the Anglo-American Cable Company, London, regretting their absence. The latter telegram left London at 1.2 p.m., June 10th, and reached New York at 3.55 p.m. A complimentary letter was also sent by President Grant. The services concluded with a prayer, by the Rev. Dr. Tyng. In the evening Professor Morse had a reception at the Academy of Music, which was attended by a large audience. The Hon. William Orton, President of the Western Union Telegraph Company of the United States, was chairman, and made an address recounting Morse's early struggles. At nine p.m. in every office in the United States the operators assembled, and work on the lines temporarily ceased; a telegraphic instrument being brought upon the stage, and connected with the lines leading to all parts of the country, a young lady operator then sent the following telegram:—"Greeting and thanks to the telegraphic fraternity throughout the world. Glory to God in the highest, peace on earth, and goodwill to men." Professor Morse seated himself at the table, and, amid applause, manipulated his own signature to the message. Mr. Orton remarking, "Thus the father of telegraphy sends his benediction to his children." Addresses were made by Dr. G. B. Loring, Rev. G. W. Simpson, and General Banks, while Professor Morse, at the close, read an address, giving the history of his invention. The Professor, whose age is now 80 years, thus closed his connexion with the telegraph. During the evening answers to his telegram were being received from all quarters.

BRITISH ASSOCIATION OF GAS MANAGERS.—The eighth annual meeting of this association, which has hitherto held its yearly gatherings in the principal towns of Great Britain, was opened in the theatre of the Royal Dublin Society, on the 13th ult., and continued for three days. Mr. Edward White, of Birmingham, Vice-president of the association, occupied the chair. Various papers in connection with gas-engineering, &c., were read, as also the annual report. Before leaving town the members visited the works of the Alliance Gas Company, where they were entertained by the chairman and directors.

It is reported that a sum of £10,000 has been granted towards the erection of a building for the customs, post-office, and telegraph departments in the City of Waterford.

TENDERS.

For works at the Corn Market, Cork. Mr. Richard R. Brash, M.R.I.A., architect:—

Robert M'Sweeney	£1,375
C. W. Atkins	1,055
William Barnard	1,020
James Hunter	980
Thomas A. Walsh	892
Richard Evans (accepted)	862

TO CORRESPONDENTS.

P. H. Tullamore.—Shall be glad to hear from you about the volumes.

J. O'R., Cork.—We await the expected drawing of the work in question.

Several Correspondents.—We give ample information about the Carpenters' strike in this number.

The American Builder for June has not yet been received.

R. R. B., Cork.—Thanks. We wish all architects and building committees would act similarly, in sending lists of tenders for publication in our pages.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Civil Service Gazette.* Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homoeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

London is now ahead of our great manufacturing towns in the production of clocks suitable for churches. Steam power, improved machinery, and the highly-skilled artisan to direct, are rapidly developing this branch of our national industry. One manufacturer, Mr. J. W. Benson, of the Steam Works, Ludgate-hill, and Old Bond-street, W., (whose factory appears to be a perfect beehive), is receiving daily orders from all parts of the world for every description of timepiece. To this branch of business is added an artistic collection of gold jewelry, silver and electro-plate, and all who visit London should inspect this magnificent collection. Illustrated pamphlets are forwarded by Mr. Benson on receipt of two postage stamps.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYA'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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The Irish Builder.

VOL. XIII.—No. 278.

The Social Science Congress for 1871.

THE annual business meeting of the members of the Social Science Association was held on Friday, 7th of June: Edwin Chadwick, Esq., C.B., in the chair. A report from the Council of the business transacted during the year was read, to which was appended the financial statement. Sir John Parkington, Bart., M.P., was elected president of the Association for the ensuing year; Edward Barnes, Esq., M.P., was elected president of the Education Department; George Godwin, F.R.S., Esq. (editor of the *Builder*), president of the Health Department; and William Newmarch, Esq., F.R.S., president of Economy and Trade Department. Vice-presidents and other officers, and the standing committee, were also appointed.

The annual congress meets at Leeds this year on the 4th of October next. It is likely to be a very influential gathering, and many papers of an important character are expected to be discussed. In the Education and Health Department great interest will, no doubt, be manifested. The Census Returns and the action of the London School Board will afford subjects for interesting discussion, and papers may be expected directly bearing upon these matters.

A more fitting president for the Health Department could not be well chosen. The life-long labours of Mr. George Godwin have been devoted to sanitary improvement; his published works—"London Shadows, or the Homes of Thousands"; "Town Swamps and Social Bridges"; and "Another Blow for Life"—are works which have done an immensity of real philanthropic and practical public good. Added to these, the pages of the *Builder* are enriched weekly by articles and papers bearing upon social and sanitary science;—in fact, the publication is a volume of necessary reference on all that appertains to the history of modern sanitary progress and improvement. The citizens of Dublin are indebted to the *Builder* not a little; and, though strong and burning words have often been written in its pages on the shortcomings of corporate magnates in this country, we cannot deny that honest truth and a sincere desire to lead, to public good marked every essay in this direction. Few can relish being painted to nature, particularly if there are external disfigurements visible. The photograph of public defects is as often resented by public bodies as if it was a personal *fac simile* of a repulsive countenance; but we must be prepared, one and all, to see ourselves as others see us, and not as we would like the world to see us.

Dirt produces disease, both lead to crime, and crime can only be prevented by due attention being paid to early training, education, and cleanliness. The public health can only be thus secured. Healthy and habitable dwellings for the working poor are the wants of our time, and the Social Science

Association are leading the way, by their labours, to a recognition of the vital principle that health is strength and longevity, and that sanitary knowledge is national power.

THE CITY, THE CORPORATION, AND THE COMMON WEAL.

WHEN the germ of our first municipal institutions was developed in the early guilds of the *communes* and boroughs of the Middle Ages, none could have anticipated their ends, evolutions, and uses in the nineteenth century. There were town councils within the walled towns eight centuries ago, amenable to the electoral voice; there are town councils still, but the majority of their body insolently betimes try to ignore the power by which they live, move, and are created. It is well that our local and public bodies, one and all, metropolitan and provincial, should be reminded that they are at the mercy of a parliamentary veto at any moment, and that despite their charters, kingly and queenly, the charm that they possess for so many may be at any moment dispelled.

Dublin has had no Dick Whittington on her magisterial roll, although she has had a John Le Decer, one of the most upright and philanthropic of her mayors or provosts, who gave her stone bridges and sparkling fountains. What a long lapse, however, lies between 1808-9 or 1824 and 1871, and, on the other hand, what very little corporate advance in honour and usefulness! The charters of the city are moth-eaten and in shreds, and back into dust has also crumbled the bones of the monarchs who granted them. Reform was the cry a century ago; reform was the cry in 1841, yet, in 1839, the Lord Mayor and Corporation presented a petition at the bar of the House of Commons against the Irish Municipal Reform Act. Well, from 1841 to this, exactly thirty years, what amount of public improvement have the "Reformed Corporation" to show for their tenure of office? It might be summed up and compressed into a nutshell. The streets of Dublin are as dirty as they were in 1840; the property in the several streets, lanes, and courts is in a more tumble-down condition; the Liffey and its tributaries, the Dodder, the Poddle, the Bradogue, are more filthy and foul—the first-named having reached that climax of pruriency that the epithet of "abomination" is necessary to describe it. The public improvement of Dublin during the last thirty years has been more the result of private enterprise and suggestion than corporate foresight or capacity. The College dead-wall in Nassau-street has given place to a railed enclosure long since. The Wide Street Commissioners widened the top of Grafton-street a generation ago, and the Corporation have left it so since. The Pillane improvement is more the result of a governmental desire for more room for law courts than a municipal intention to give fresh air and a good thoroughfare to a poor quarter of the city.

The erection of public statues and one or two testimonial fountains is the upshot of public subscription; the restoration of our city cathedral and churches is the same. Harbour improvements and dock accommodation owe the Corporation nothing. Dublin has got new Waterworks, the debt of which hangs around her neck still like a millstone, which, with the addition of the new loan for the perpetration of one of the

most mischievous and flagrant pieces of engineering folly ever evolved from the brain of man, will complete the crucifixion of this most unfortunate city. Citizens of Dublin, are ye awake, addled in mind, or irrecoverably idiotic? Have you not witnessed enough of the corporate failures of the last twenty years, and their sequence in new rates and taxes, to make you open your eyes? Are a few members to be allowed to ride their own hobbies and expend the public money, heedless of the consequences their acts entail upon the already overburthened?

Have we in reality a free and honest press in this city, and if we have, why is not its voice heard upon the side of the righteous? Some of our aldermen and town councilmen are newspaper proprietors, and others of them have interest in newspapers, and a few more are striving hard to make elbow-room for themselves in the Town Council, and this is one of the reasons why corporate expenditure and extravagance go so long unchallenged. The daily press of Dublin can understand us rightly, but it will not dare to broach the matter. Without their interference or aid the matter is forcing itself through channels that can command attention and respect. The architectural and medical journals of London have lately been bestowing a good deal of attention upon Irish matters, and drawing notice to the reprehensible incapacity that characterises corporate acts, not only in Dublin, but in other Irish cities and towns. If only for very shame, the daily press of this city ought to be driven or feel itself called upon for a reply. Is it not an almost pitiable state of affairs to see five or six daily journals throwing their ægis over the heads of individuals who are voting public money away in thousands for wild and useless labour? Among these, too, are advocates of "Home Rule," and yet these miscalled advocates advocate, we fear, little more than their own selfish interests.

The very stones of the streets bear testimony to the truth, that art and trade are hindered in Dublin by Irishmen who raise the cry of "Justice to Ireland" in a political sense, while they are exorcising from her heart the little remnant that remains of her native industry.

Let us ask calmly, what great benefit was conferred upon this city by the Dublin Waterworks in a pecuniary sense? Will any one be bold enough to deny that the metal castings of that contract could not be had in Irish foundries at home? It was made, however, worth somebody's while on the Municipal Council of Dublin to pave the way for letting the contract cross the channel. Perhaps this pen will tell the whole history, and the commission obtained, some future day. It is rumoured at present in certain firms in London, that the contemplated drainage works of Dublin will put something handsome in some one's pocket. In England, it is customary to hear the following words expressed whenever a corporate job is in contemplation—"Who's in the swim." There are some people who can tell us already where the bricks, stone, cement, and pumping apparatus are likely to be purchased. Perhaps we could make a shrewd guess ourselves where some material might possibly come from, but at present it will be more wise on our part to put up the danger-signal than await the collision.

What are the duties of a corporation to the city which it is elected to govern? A corporation is a local parliament, and its

principal duties are to secure the well-being of the inhabitants and the property of the city, to help the public credit, to secure the public health, to reduce taxation, and project and carry out useful and necessary works, without entailing an expenditure incommensurate with the capacity of the city to relieve itself. This the Corporation of Dublin has not done; but it has plunged the city, and it is still submerging it, into a gulf of almost inextricable debt, with little hope of recovery for a couple of generations save by exorbitant and crushing rates. Lord Mayors may change, but as aldermen and town councillors they live and are re-elected; the city engineer, like a chief justice or judge, holds his place independent of a change of parties.

Mr. Park Neville is a man of considerable experience, and as an engineer he ought to know something about the sanitary wants of Dublin, where he has now been so long located. He is the servant of the Corporation, but he is also the servant of the public, for both the Corporation and their paid officials are amenable to the public will, for by the money contributed and raised on public property they are sustained.

With every respect to Mr. Park Neville, with whom personally we are unacquainted we must say he is not doing his duty to the citizens of Dublin. His opinion was consulted on the Dublin Main Drainage Bill; he has been for years conversant with the subject, and yet withal he pronounces in favour of Mr. Bazalgette's Utopian or unpractical scheme for the disposal of the sewage of Dublin. Now, we have no hesitation in denouncing the Corporation sewage scheme as a monstrous piece of bungling and jobbery combined. We have stated this before through other channels, and we state it now with a redoubled conviction, if that be possible.

The Dublin Port and Docks Board ought to act as a sort of a Liffey Conservancy, and despite the act of parliament compel the Corporation of Dublin to free the harbour from pollution, and to keep the mouth of the bar from being silted up with sand and sewage. This it can do, and there are many landed proprietors along the shore, from Merrion to Clontarf and Sutton, who can enforce their rights, and, we are sorry to say, will have occasion to do so. A more ill-digested system of main drainage has seldom or ever been devised, and we cannot account for Mr. Bazalgette proposing it, save upon the supposition that he was overruled by certain interested parties in the Town Council, who are determined to force their own views as means to an end for the accomplishment of their own desires.

Poor Dublin! how many months, shall we say years, will you still be obliged to listen to unseemly wrangling over the rebuilding or repatching of Carlisle Bridge? When will the statue of O'Connell raise its head in Sackville-street? Likely, perhaps, when the marble tablet of its proposed sculptor will be seen in memoriam in some church in another land. In the meantime the resident native artist may break his heart over deferred hopes, and die with a grateful remembrance of the patronage which he received from his patriotic countrymen.

We have warned the Corporation of Dublin before, not in anger, but with an honest desire to see them standing rightly before the British public. We have reminded the Press of Dublin of their shortcomings, and we will remind it again that the plank is

slipping from beneath their feet. They cannot any longer hope to burk criticism on public conduct, or the doings of public bodies. People will and must know how public improvements are carried out, and the cost of their execution. People must know, and have a right to know, how balance-sheets are struck, and how public audits are managed. The slipshod way in which these matters have been done in Dublin is a crying scandal, and if it exists much longer let no surprise be felt if powers are asked from the Parliament to appoint a public auditor, to see how the public money is expended. The power of enforcing this measure exists in the hands of the ratepayers and citizens at large, and Parliament will assist at any moment that the question is shown to deserve enquiry.

It is a truly humiliating position for Dublin to be always begging from the Treasury a loan for this public work or that; but what makes it ten times more humiliating to Dublin citizens who have some honest respect and pride, is to see this very money again sent out of the country for foreign material which could be procured at home as cheaply and as good. Added to this is the aggravation that the repayment of these loans has to be squeezed out of scant incomes of traders and workpeople who have never benefitted in the slightest way by these public undertakings.

It is with the greatest reluctance that we are forced incidentally to touch betimes upon the region of politics, yet we cannot resist asking why do not the "National Journals" give a little attention to the Irish art, trade, and manufacturing questions of the day? or why do they not assist journals like the IRISH BUILDER in spreading abroad or within the circuit of their circulation the grievances and obstacles to industrial progress in Ireland? We are sure that the proprietor of this journal would be only too happy to allow the transference of professional matter from his publication into the columns of the public press, his chief desire being to raise, restore, and faithfully represent the art, architectural, engineering, and sanitary wants of Ireland. Ireland, as a nation, can be assisted in these matters outside her own shores, but she can only be practically and systematically served at home, where her interests exist. Mutual reciprocity is indispensable, and professional jealousy should have no abiding place in the breasts of men whose objects ought to be a desire to attain an honest reputation, without injury to others in the same calling as themselves.

Architects, artists, sculptors, engineers, builders and craftsmen of Ireland, be manly and dignified one and all; forget creed, party, caste, and remember *in globo* you are natives all, whose interests are alike. Be henceforth a compact body. Work each in your own particular professional groove, but work at the same time with a brotherly feeling, and by your example you will lay the foundation of a public good that your latest posterity will remember with pride. Nations have long memories, and like our grand old buildings in the architectural domain they were not the growth of a day, a month, but of years. Mind as well as matter went to their formation. The thought and the purpose will outlast the organ of its inspiration; and even when the edifice crumbles back into its original element, the names of the founders will be lisped from the tongues of men.

DUBLINIENSIS.

THE ROYAL AGRICULTURAL SOCIETY'S SHOW.

PREPARATIONS on an extensive scale are being made for the holding of an exhibition of horses, cattle, poultry, farm implements, &c., &c., under the auspices of the Royal Agricultural Society of Ireland. Our readers will remember that the last show got up by this Society was held in St. Stephen's Green, but, owing to the crotchets of one individual householder, the same advantageous site could not be secured for the present one. We are of opinion that the Society will not regret having been obliged to make a change, as the locality selected is in every respect suitable for their purpose. On the south side of Ball's Bridge, and in its immediate vicinity is a field comprising about twenty-six acres commanding views of the most charming scenery, with the Dublin mountains as a background. The whole extent of this ground has been enclosed with new flooring boards to an equal height all round. Some hundreds of carpenters are busy putting up the sheddings for cattle and horses. The implement and mechanical sheds will soon be complete. The "royal" stand will be about 400 feet long, composed of eight tiers of seats, calculated to accommodate 1,400 visitors. The jumping of horses will take place in front of the "royal" stand. On the right and left of entrance gate are the secretaries' office, telegraph office, refreshment rooms, &c., &c. The show will open on the 1st prox., and be continued on three following days. Messrs. Wardrop and Son—Great Brunswick-street, are the contractors, who are carrying on the entire works under the direction of Mr. Joseph Maguire, C.E., and Mr. Thomas Waters, C.E.

The secretary and the hon. secretaries have returned from the Agricultural Society Show at Wolverhampton, where they have been very successful in entries. Some novelties will come over: amongst others, Mr. Fowler's steam ploughing tackle for small holders, will be found in the Show Yard, at Ball's Bridge.

THE ROYAL HISTORICAL AND ARCHEOLOGICAL ASSOCIATION OF IRELAND.

THE quarterly meeting of the above Association was held on the 5th inst. at Butler House, Kilkenny. MAURICE LENIHAN, Esq., J.P., in the chair.

The following were elected as members:—Mrs. H. Gregory, James Frost, J.P., Messrs. J. Parker and Co., Oxford; Mr. Thomas Bosworth, London; George Innis, G. Wallis, Art Division, South Kensington Museum; William A. Hinch, Patrick J. Roche.

George Stewart was elected as Fellow. Maxwell H. Close and Laurence Waldron were promoted to fellowships.

The Rev. James Graves begged leave to propose the admission to fellowship, *honoris causa*, of the chairman of the meeting, Maurice Lenihan, Esq., the Historian of Limerick, and to whom the Association was so largely indebted for many valuable services rendered, not the least of which was the contribution to their Journal of the extracts from Dr. Arthur's Fee-book. No stronger proof could be afforded of Mr. Lenihan's taking a warm interest in the Society, than his coming from Limerick this day to attend their meeting.

Dr. Riggs was elected Honorary Local Secretary for Armagh, and A. Courtayne, Esq., Honorary Secretary for Clogheen.

Mr. Graves read a letter from A. Courtayne, Esq., expressing his regret that neither

a seal nor a parchment form of diploma for Fellows, or for other official documents, was possessed by the Association. He "thought that with their favourable financial prospects, such wants ought to be supplied. Every Fellow would be glad to pay a fee of 5s. for such a document attesting his position in the Association, and thus no expense would be entailed on the funds. Why not advertise for a design, and give a small premium for the best?"

The chairman fully concurred in the suggestion of Mr. Courtayne. Every Fellow would naturally wish to possess a tangible diploma of fellowship, which would go down to his posterity.

Mr. Graves did not consider a Fellow ought to be charged any additional fee for a document of the kind. As regarded a design for a form of diploma of fellowship, they need not advertise for it, as he had in his possession an admirable design for the very purpose, made by their late deeply-regretted associate, George V. Du Noyer. The framework was an Hiberno-Romanesque church doorway, the details principally taken from the Killeslin doorway, Queen's County.

It seemed to be the feeling of the meeting that Mr. Du Noyer's design ought to be adopted, and that a device for a seal might be suggested by Mr. Graves himself; Mr. Bracken pointing out that it was due to Kilkenny, as having had the honour of establishing the Association, that the device should have some feature connecting it with that city or district.

The secretary laid before the chairman a photo-lithograph of the document exhibited by Mr. Watters at the last meeting, bearing the autographs of several of the leading members of the Supreme Council of Confederate Catholics, which, he pointed out, was a perfect fac-simile. It had been prepared as an illustration for the April number of the Society's "Journal." The issue of that number had been delayed, waiting for this interesting illustration; it would soon be in the hands of members.

PRESENTATIONS.

A number of books presented to the library, chiefly the publications of kindred societies, were laid on the table. Amongst them were a large volume of weather statistics, taken at Greenwich, presented by the Rev. John L. Darby; and the paper, re-printed in book form, on the proposed site of the Synod Hall at Christ Church Cathedral, Dublin, which had lately appeared in the IRISH BUILDER, and which had attracted general attention. The London Builder had expressed agreement with the views of the writer. The meeting gave unanimous expression to a hope that nothing would be done in arranging the site for the Synod Hall, to interfere with the architectural beauty or proportions of the Cathedral.

The most valuable contribution to the library, however, was a manuscript book of pedigrees of the ancient families of the county of Wexford. This had been copied by E. J. Mayler, Esq., from a manuscript book of the late lamented Mr. Hore, Pole Hore, for the Association, and was by him now presented.

A special vote of thanks was given to Mr. Mayler for his valuable present, and the great trouble and care which he had bestowed on the work of copying it.

A. K. Young, Esq., J.P., Monaghan, presented a collection of very valuable photographs of a number of objects of archaeological interest in his own collection; and Captain T. Bigoe Williams, Dover, presented a series of very valuable photographs of buildings and objects of interest in his locality, including several views of Down Castle, Kitsu-Cottyshe, &c.

E. J. Mayler also presented to the museum an old twelve-pounder cannon ball, found at Newbawn Castle, near Carrigburn, county Wexford, supposed to be a Cromwellian relic.

Mr. W. F. Wakeman presented an Indian stone tomahawk, as the manner in which the stone was attached to the handle might serve

to illustrate the mode in which our Irish stone celts were mounted in primeval times.

ST. JOHN'S BRIDGE, KILKENNY.

Mr. Peter Burtchaell, county surveyor presented some objects found in sinking the shaft to ascertain the depth at which a secure foundation could be obtained for the piers of the proposed new bridge of St. John. They consisted chiefly of portions of iron buckles, and conglomerations formed by the oxidation of bits of iron amongst pebbles. There were some animal bones, which having been submitted to Dr. Foot, of Dublin, he decided that they belonged to a ruminant—most probably a deer. Four coins were found, two of silver, being respectively coins of Philip and Mary, and Elizabeth, and two of copper, one being a halfpenny of George II., and the other so worn as not to be recognizable. These might be considered an earnest of more important and interesting remains of antiquity, likely to be found in the course of the work of erecting the new bridge. Mr. Burtchaell also submitted to the meeting a measured drawing of one remaining arch belonging to the old bridge of St. John, which was swept away by the flood of 1763. This arch is to be seen within the present mouth of the main sewer of the city. It seems to have been a land-arch of the old bridge.

The meeting expressed much gratification at observing that Mr. Burtchaell was carefully looking after all matters of archaeological interest which might turn up in the works connected with St. John's Bridge.

ANCIENT IRISH CANOE.

Mr. Graves read a communication from Mr. A. Stephens, the contractor for the work of deepening "the ford" in Waterford Harbour, describing an ancient oaken canoe, 33 ft. long by 3 ft. wide, hollowed out of a single tree, found by the divers in the course of the operations last April. Mr. Stephens, as a member of the association, had kindly offered the canoe to its museum; but Mr. Graves said, that having heard that an application for it had been made from the Royal Irish Academy, and as their Association did not wish in any way to interfere with the formation of the National Museum of the Academy in Dublin, he had written to Mr. Stephens waiving the association's claim to a preference in the academy's favour. The meeting approved of what Mr. Graves had done, as the canoe was to be preserved in the Academy's museum, and not sent out of Ireland, as the Waterford newspapers had announced to have been arranged at the time of its discovery.

KILMACDUAGH ROUND TOWER.

Mr. Graves read a portion of a letter received from Lord Courtown, in which his lordship mentioned that he had heard from the Hon. Mr. Dillon (son of Lord Clonbrock) that a large portion of the Round Tower of Kilmacduagh had fallen, and that the rest of the structure was in a perilous condition. Lord Courtown asked—"Could further damage be stayed by an appeal to the public?" The meeting expressed much concern at this intelligence, and requested Mr. Graves to communicate with the Hon. Mr. Dillon, in order to ascertain the exact extent of the damage, and what course might be taken to stay any further injury.

ANCIENT CINERARY URN.

Mr. W. H. Patterson, Belfast, sent a photograph of a very beautifully ornamented fictile vessel, found about the year 1840 in Altgarron townland, at a place called "Yellow Jock's Cairn," on the slope of the Divis mountain near Belfast, and now in the possession of James Hunter, Esq., Dunmaun, County Antrim.

ARDFINNAN CASTLE.

Mr. Courtayne, Clogheen, communicated a curious legend which he had recently picked up at Ardfinnan Castle. There is embedded in the wall of the mill building there (a portion of which is said to be as old as the castle, the erecting of which is attributed to King John) a square stone bearing an almost effaced

bas-relief figure of a woman's head. The stone is about 15 in. square, about 15 ft. above the level of the road, and a few feet from the bridge pier. It is stated that, for ages, all passers-by on the bridge who are familiar with this object, have been accustomed to intimate their contempt for it as they go by, the women of the district in particular, always spitting upon it. The legend accounting for this is, that when the king was building the castle, women employed in the work lived in huts around the building, and as it progressed towards completion it was occupied by the servants and dependents of the king, amongst whom the cook (whose effigy this head is said to be) used to be frequently asked by the masons for a share of the good things of her department; but she having declined to yield to their solicitations, they vented their disappointment and spleen against her, by setting up a caricature of her in this conspicuous manner, heaping every possible indignity upon it, which observance towards it was handed down to posterity. The chairman said he had himself not long since heard this legend told on the spot. He referred to his note-book, and found a memorandum that the effigy was popularly designated "Jane Squib's head."

THE MUNICIPAL RECORDS.

Mr. Watters proceeded with the reading of extracts from the municipal records of Kilkenny in his custody as town clerk. They shall appear *in extenso* in the Society's "Journal."

THE "MYSTERIES," OR "MIRACLE PLAYS."

Mr. Prim said that in the year 1853 in a paper which he had the honour to read on the subject of "Olden Popular Sports and Pastimes in Kilkenny," he had treated of the "Mysteries" or ancient religious plays, illustrating his subject by some extracts, having reference to the performances, from the "Red Book" of the Corporation [*Transactions Kilk. Arch. Soc.* vol. 2, page 326]. Mr. Watters had lately called his (Mr. Prim's) attention to numerous incidental references to "Mysteries" in the files of orders and receipts preserved as treasurer's vouchers, amongst the Corporation records; and had kindly afforded him every facility and assistance in copying them, for the purpose of bringing another paper on the same subject before the Association. He had not intended to have entered on the matter at present, till he found that just at this moment the great "Miracle Play" or *Passions-Spiel*, one of the ancient "Mysteries" still kept up and reproduced every tenth year, was in course of being enacted at Ober-Ammergau, in Bavaria, and was exciting very general interest. Although not quite prepared, he thought that this was the most suitable time for bringing under notice the additional information which he had gleaned from the local municipal documents, respecting the religious plays which had been performed in Kilkenny in the sixteenth and seventeenth centuries. Having stated that the plays were performed under the patronage of the Corporation, who allowed regular annual salaries to the actors, as well as to other performers who formed public processions in connection with them, appearing in various characters on Corpus Christi and Midsummer days, Mr. Prim went on to read, and offer some comments on, the extracts.

The other papers contributed were, one by W. F. Wakeman, Esq., accompanied by plans and drawings, giving the results of his investigation of the crannogs in Lough Eyes, Co. Fermanagh; and another, by Sir D. J. Norreys, descriptive of the very curious arrangement for shutters of slate slabs drawing out of recesses for the purpose, in the door and windows of the ancient building supposed to have been the priest's house at Kilmalkedar, County Kerry; the very beautiful executed plans and drawings of which excited very much interest.

The usual votes of thanks to donors and exhibitors were passed, and the Association adjourned to the first Wednesday in October.

ON ARCHITECTURE AND ITS RELATION TO MODERN LIFE.*

By AN ARCHITECT.

(Concluded from page 166.)

THE principles we have endeavoured briefly to elucidate, though most completely illustrated in the two styles selected for reference, may be equally exemplified in every class of architectural design. It may be that few really original designers are conscious always of deliberately following out such principles; but they do so by intuition, while to the public, who are the employers and to some extent the critics of the architect, a general idea of the principles on which architectural design is based should certainly be of value. If, for example, the classic column were understood as a feature expressive of resistance to vertical pressure, we should see no such absurdities tolerated in our towns as the use of a single such column, with a small statue hid away on the top, for a monument: it would be seen that such an erection is an absurdity. So of a hundred other misapplications of well-known architectural features, which stare us in the face in every street, without exciting a suspicion as to their fitness in the eyes of most of the passers-by, and which attain their most unhappy and grotesque development in some of the great engineering works which are the pride of the present generation. As a nation we are (at present) good engineers and bad architects, and our engineers who have carried out, with equal energy and ability, some of the most important practical work of the present day, have taken (like the Romans) to borrowing stereotyped architectural features, and applying these to their structures in the vain idea of thereby making the latter 'ornamental.' We will mention one instance, familiar to most of our metropolitan readers, as it forms a singularly apt illustration of what we mean by the misapplication of an architectural feature; we allude to the new bridge over the Thames at Blackfriars. Standing on the Embankment and looking along this bridge, we see that the outer face of each pier consists of a huge cylindrical granite pillar, of very thick and squat proportions, carrying a Brobdignagian spreading capital. Now, the evident expression of such a feature, of such proportions and material, is that of power to sustain an immense vertical pressure. What does it really sustain in this case? A light balcony thrown out from the footpath over each pier, for the convenience of loungers on the bridge. Let the most unarchitectural spectator once look at the feature in this light and he must see its absurdity. Observe, the mass of material forming the column may be a necessary addition to give greater stability to the pier, but it has been added in the wrong form and with the wrong expression; it should have taken the form of a buttress, or shoulder, leaning towards the pier and adding to its apparent stability, not that of a ponderous vertical pillar sustaining next to nothing. This is only one out of many instances of the total and absurd ignorance of architectural design displayed in some of the largest and most expensive engineering works which are being carried out in this country, and which will remain as phenomena for the criticism of a better educated generation.

While, however, architectural design is governed, as we have attempted to show, by certain broad and universally applicable principles, there are other influences, the nature of which is concisely indicated in our quotation from the great French literary architect of the present day. Unlike the purely ornamental arts, architecture is based in the first instance on the practical requirements of every-day life; unlike them, too, its productions are exposed to all the vicissitudes of seasons and weather. Hence its local characteristics will be influenced both by the social and political habits and creeds of the various nations who cultivate the art, and by the climate under which it is developed. And a little consideration will show that the former

class of influences assert themselves most in determining the general arrangement and style of a building, the climatic influences acting, in general, more on the character of the ornamental detail. Underlying both, indeed, there is that subtle connection with national character and feeling, perceptible in both the general design and the ornament of every independent and unforced architectural style, which is felt by every educated observer, but which evades all attempt to describe or define it in words. We see in the Grecian temple, 'of small and delicate proportion,' the outward type of the Hellenic mind, in its clearness, its serenity or blitheness (*Heiterkeit*), its freedom from passion; in the Gothic cathedral, the fierce flame of mediæval religious fervour and gloom and aspiration, as it breathes through the sacred Latin poetry of the period; in the fanciful exuberant ornament of the Saracenic style, the material counterpart of the Oriental mind in its voluptuousness and wealth of imagery; or even in such a less pronounced style as that of our own Queen Anne period we can recognise the aspect and spirit of the prim, *fade* gentility of those 'teacup times.' But such relations between architecture and national character elude definition. Looking, however, at the more practical relations between national manners and architecture, we can see that where a nation is eminently ecclesiastical in its government and theory of life there will arise temples, planned with more or less regard to the convenience of the general crowd of worshippers, as there are less or more of hierophantic mysteries in the celebration; that under a secular despotism costly palaces and mausoleums will form the staple buildings of a country; that in a commercial community, where merchants rank as 'princes,' exchanges and offices will assume a palatial aspect; that where social and domestic life is above all valued, a corresponding impulse will be given to the erection of buildings in which unpretending comfort and cheerfulness will be the predominant characteristics; and so forth. The character of ornament and treatment of detail, on the other hand, is, as we observed, mainly (though for the most part unconsciously) determined very much by climate, a clear air and bright sunshine giving effect to a delicate relief of surface and moulding which in a more dull and misty climate would be tame and ineffective; while the bold shadows and sharp contrasts of line and surface rendered necessary (as in English Gothic) under a northern sky would appear too heavy and *prononcé* in a stronger sunlight and clearer atmosphere.

These relations of architecture to climate and national customs and polity have been fully exemplified in all genuine and unconventional architectural styles throughout the world, even in those which, like the Chinese, are artistically worth little notice. Till a comparatively recent period of history the buildings of nearly all nations were the natural outgrowth of the influences of their respective climates and habits of life, and therefore were almost necessarily suitable to, and characteristic of, the purposes for which they were built. It was in the *cinquecento* period that the movement arose which was to revolutionise architecture, for a long period at least, in this respect. From this time architecture was regarded, more or less, not as the art of building suitably and expressively, but as the art of reproducing and imitating architectural features belonging to a former period. The Italian Renaissance, which it has become the fashion recently to talk of as the death-blow of architecture, does not merit all the obloquy it has received on this head. The movement in Italy was a genuine enthusiasm for a great intellectual past in literature, carrying with it a corresponding enthusiasm for the architectural forms of the same epoch, which it must be remembered had originally grown in the same climate and on much the same soil whereon it was proposed to reproduce them. Moreover, the Renaissance architects, the best of them at least, were no servile copyists: they invented new combinations of the old forms, and produced a style

to be commended both for artistic effect and suitability to the climate and circumstances of the country. Domestic splendour and luxury could hardly be better expressed than in some of the Florentine palaces of the period. It was the transportation of the Renaissance to climates unfitted for it, and where also it received less delicate and refined treatment, which made it the bane of architecture in our own and other countries. Since then, as was observed at the commencement of these remarks, we have had in England two separate 'Renaissances' of our own, under one of which the land now groaneth and travaileth. Our Grecian Renaissance was almost a purely architectural one, brought about by the publication of certain ably got-up works illustrating the remains of Greek temples. The mania was almost universally prevalent for a short time, and a Greek temple was the 'front' for everything, from a church to a betting-office; only one or two able artists, such as the late Mr. Cockerell, achieving something like an original adaptation of the style. The Gothic revival here, however, is almost the precise counterpart of the Renaissance in Italy, including as it does a mediæval dilettantism extending to the revival of mediæval myths and literature, and the brushing-up of ecclesiastical old clothes, just as the Italian Renaissance included the revival of Platonic philosophy and Ciceronic Latinity; with the difference that in the English revival the architectural movement, which in Italy was only a secondary result of the Renaissance, seems rather to have taken the lead, and given occasion for the other developments of mediævalism which have followed in its train. Of the two modern English revivals, the Greek was one absolutely without excuse; it was the transplanting here of a style suited, practically and artistically, only to a bright, sunny climate and to special materials, and totally opposed to all the habits and requirements of English life. The Gothic revival in England has, like the Italian Renaissance, the merit of being a resuscitation of a style indigenous to the climate, and precisely suited to the materials which we have at hand; but here the suitability, for the present day, pretty nearly ends. While our climate is almost unchanged, manners and habits both of thought and life have been nearly revolutionised among us; and the mediæval style—the offspring of a *furore* of religious asceticism no longer existent in the nation at large, and showing, moreover, in its grotesque adjuncts, and in what Ruskin has happily termed its partially 'wolfish' expression, the impress of a rude though powerful age—is no representative of the more civilised manners and broader culture of the present day. Apart from climatic considerations, the Italian Renaissance style reflects more truthfully the modern feeling and tone of English society. It is to an intuitive perception of this that we must attribute the phenomenon, which has much puzzled sundry indignant Goths, of the general sympathy of the liberal or 'progress' party in politics with what is called 'classic' architecture. The conservative and ecclesiastical party, on the other hand, are nearly all ranged, by a similar instinct, on the side of mediævalism. It is well that the public mind should be brought to see the true state of the case on this head, and that the present mediæval revival is no less a passing fashion, has no more element of permanence in it, than any other of the architectural fashions of the last three or four hundred years. It has the same radical defect as the others, viz., starting with the assumption that a certain style is to be imitated, instead of considering first what are the circumstances and needs to be provided for, and building accordingly. The mischief is more than a mere æsthetic one. A building once erected represents an outlay of money which cannot readily be replaced. Consider the cost of labour and material employed of late years on the building of churches alone. The total for twenty years back must be a very large sum; and when the present ecclesiastical mania subsides, what will there be

* From *Fraser's Magazine*.

to show for it? A set of buildings, imitations (many of them bad ones) of other buildings of the same class erected five hundred years previously, and which can apparently be of no possible use when the sentimental impulse which demanded them has passed away. That the said impulse should prove a permanent one is surely of all things the most improbable, considering the variable tendency of human thought and feeling in the present day. Such temporary revivals of the religious forms of a past age are familiar enough to students of history, though they have not often got themselves embodied in stone and mortar to such a wasteful extent. We are about, too, to erect an immense building for our Law Courts, under the direction of an eminent architect whose talent no one will question, but whose sympathy and connection with the ecclesiastical party have been conspicuously made known, and under whom the whole exaggerated ecclesiasticism of the day is to be stereotyped in visible form and feature in this great evil building, which will last as a piece of important national property long after even the memory of the present attempt at clerical predominance has passed away. It is probably too late to protest; but it is really a matter for regret that a great public work should thus be made the sport of a passing fashion, of which it ought to be totally independent. Of course we are not advocating a return to the Classic Renaissance, which would only be passing from one sham to another. All we plead for is to see the true principle of architectural design restored—that of making the requirements and purposes of our buildings the basis of their design, instead of starting with a certain class of design as a foregone conclusion, to which the building is to be made to fit. This, as we have already hinted, is the principle lying at the root of all true architectural styles. So with the use of material: the most important distinction (very little comprehended) between the Gothic and the Renaissance is, that the former uses all materials in the most natural and suitable manner, and makes the collocation and arrangement of material really a part of the picturesque of the architecture; whereas the Renaissance ignores the nature of the material and the manner of working it, and most Renaissance designs, such as our modern club-houses, would look just as well as models carved in the wood or alabaster as they do in the reality. What are called very 'handsome' buildings can be made in this way when there is plenty of money to spend; but for economical and unpretending structures this style is nowhere. On the other hand, a style which depends for effect upon the truthful and expressive use and picturesque collocation of the materials at hand may be as effective, in its way, in a humble street dwelling-house as in a mansion or a town hall; and this, which is really and truly the Gothic principle of working in architecture, may be exemplified *ad infinitum* without any copying of the ordinary figures of mediæval architecture, or any assumption of the ecclesiastical character. How this may be accomplished it would be perhaps difficult, certainly out of place, to point out here in detail; but one thing the non-professional public may do towards giving fair play for such a system of architectural design. Let them give up, once and for ever, the popular idea that a building must needs resemble something else belonging to another time or country; let them no longer go to their architects with requests for schools and churches in the 'Gothic style,' for theatres and banks in the 'Classic' ditto; let them state their requirements to an architect in whom they have confidence, and leave him to give appropriate architectural expression to the building which is to meet these requirements, unfettered by precedent, and there will then be some chance of a truthful and characteristic modern style of architecture getting itself into shape among us.

Concerning the influence (before hinted at) of political systems on the architecture of a country much might be said, and to the point;

but the subject would carry us too far afield. It is almost impossible to touch upon it, however, without remarking how uniformly architecture seems hitherto to have attained its grandest developments mainly under despotism of one kind or another, ecclesiastical or monarchical. The cathedrals and abbeys of religious orders, the palaces and cenotaphs of kings, and other great works undertaken to glorify a reign—such are its chief trophies. We will not say, therefore, that architectural splendour necessarily depends on such despotism, powerful to labour for its own fancied aggrandisement. We will rather say that power and education are slowly passing from the hands of the few into those of the many, and that architecture is likely in future to be less concerned with great and isolated works, more with the amelioration and adornment of the mass of structures rendered necessary where human families most do congregate. We are, to be sure, at present in a state of transition, and little enough has been done in this direction as yet. In one class of buildings, which have multiplied of late years, and where there would seem to be scope for much of appropriate delicacy and grace of architectural treatment—country dwelling-houses—we are lamentably deficient; meanness and vulgarity of design, or more often absence of all that can be called design, characterising a majority of such erections. That this is so is at least as much the fault of the public as of the architects. The author of an able and voluminous work on the 'English Gentleman's House,' whose professional practice has led him specially into that branch of architecture, has recorded his experience, that in nearly all cases the said English Gentleman has a rooted objection to all attempts to give individuality of style and character to his mansion or its adornments, apparently from a confused notion that it is 'vulgar' and 'pretentious' to aspire to differ from your neighbour in such matters. We fear the statement is only too correct; nor are matters mended if we appeal to the English Lady.

Surely that is no vulgar or commonplace ambition which seeks to render the home, round which all tender and pleasant associations are to cluster, itself an object of pleasurable contemplation and suggestion; to make it, not a mere harbour against the weather, with a neat and respectable exterior, but a thing of gracious and inviting aspect, with its lights and shadows, its corridors of 'grateful gloom,' its gaily lighted and decorated festal apartment, or its retired angles for meditation. We may take a lesson in such tastes from our little people: it is pleasant and interesting to see how children, taking possession of a new house, hail with delight any little bit of out-of-the-way invention therein—any bay, arcade, or balcony, which gives them a point of interest to cluster round, breaks the monotony of dead walls and square apartments, and becomes thenceforth a part of their daily life. It is good not to lose all our childish tastes. Nor shall we forget the passers-by, who will give us their benediction for placing in the midst of their favourite landscape a dwelling which, instead of being a blot and an eyesore thereon, a manifest intruder, shall rather seem, from its position and outline, the one picturesque feature to complete the view. An 'English Home' may be all this, and yet be none the less, in Tennyson's exquisite phrase—

The haunt of ancient peace.

And our towns! By what magic are we to evolve anything of rest or pleasure to the eye or mind from these dreary miles of brick and acres of slate, with a dim canopy of smoke overhanging the whole? We have at last a national style, which is really the style of the people: architecture in towns has got into the hands, as we remarked, of the many; and the many are, unluckily, not educated or refined enough to care to do anything with it. Our streets are, in the main, at the mercy of the speculating builders, whose ideas of architecture range no higher than those of our old friend Balbus in the Latin Exercises, who 'built a wall.' If Balbus had knocked a few

oblong holes in his wall besides, he would then have realised the modern ideal of street architecture. Surely we may be justified in enquiring whether it is not possible for human beings to congregate together in communities, without of necessity surrounding and environing themselves with such an aggregate of utter and unredeemed ugliness, making day hideous. Can we not attain the pleasure and convenience of living in societies without paying the penalty of spreading desolation and gloom around our steps, as if in fulfilment of the denunciation, 'Cursed be the ground for thy sake'? How far it may be possible, with time and thought and science, to render the regions where men assemble ('the meeting-place of souls,' as Mrs. Browning called our chief city) abodes not only of healthfulness but of beauty and dignity of aspect, we will not undertake to say; probably much more may be done in this direction than most persons at present would imagine possible. But at least there is no need that we should be subject to such dire monotony, such utter absence of interest and expression in our street houses and shops, as at present exists. Improvement in this matter will not, certainly, be attained by flanking doorways with 'pilasters,' or daubing over the front of a 'property' with perishable ornament, of a degraded type, in stucco. Permanence, stability, and truthfulness are among the first requirements of architectural expression. The mere unpretending employment of the best and most durable materials available, put together in the most substantial manner, and with a certain picturesque variety (not too quaint or forced), in the outline and arrangement of roofs and windows, would do wonders with the aspect of our streets, in comparison with what it is at present. The class of buildings which form the bulk of town streets—shops—offer in their usual arrangement and requirements at once an opportunity for architectural expression and effect. The characteristic feature of a shop—the open ground storey, with plenty of light for displaying the goods—is now made the occasion for the most absurd possible falsity of design, the rage for an expanse of plate glass being such that every apparent support for the superstructure is scouted, and our shops present the appearance of being built on a basement of glass, the only real support being the concealed iron column in the rear, which often very inadequately sustains the superstructure. If there be one instance stronger than another of the extent to which architecture is an index of social character and manners, it is in the coincidence between the spirit of hollow profession and puffing and ostentation characteristic of our trading classes, and the flimsy dishonest structures which they erect to recommend their traffic from. Were shopkeepers, as a class, once content to rest for success on real excellence and honesty of work, instead of ostentatious rivalry in display and advertising, we should be able to have a shop architecture in which the ground story, designed to furnish sufficiency of light without ignoring stability, would afford scope for much new and picturesque treatment. Those who are familiar with the 'Rows' of Chester can conjecture one form which such street architecture might assume—a form which might be a source of pleasure to all with an eye for the picturesque; for (to borrow Browning's phrase) 'we are made so that we like' contrast and play of light and shadow, in buildings as well as in nature. There is room too for architectural effect of the highest kind in our larger and more ample thoroughfares, were it attempted in the right way. There would be few architectural effects finer, perhaps, than might be afforded by Regent's Quadrant, were it flanked by a really fine design instead of by commonplaces in stucco. Such *ensembles*, however, are not likely to be attempted until the public and the Government of this country awake to the idea that mere beauty in public streets and buildings may be something worth having and paying for as a national possession. We are a good way from this now, if we may judge, among

other things, from the feeling and expressions evoked during a parliamentary discussion a year or two back with reference to the sum to be expended on the greatest building of the day, before alluded to—the new Law Courts. On that occasion not only did persons high in office scout contemptuously the idea of spending more money than was just necessary to make a habitable building, but all the speakers in the debate, without exception, though among the most cultivated of our parliamentary representatives (including one or two who are supposed to take a special interest in art), thought it necessary studiously to disavow any interest in the architectural aspect of the question, and to repeat, with ‘damnable iteration,’ their solemn declaration that they only wished to consider the subject ‘as ratepayers,’ and ‘from a practicable point of view.’ In other words, when a great building is to be erected, which, if worthily carried out, would be one of the glories of our capital, a ‘κτῆμα ἐς αἰῶν’ for the nation, and a centre of interest for foreign visitors, we are to haggle over the attempt to cut it down to the bare necessities of walls and roofs; and those who think the architectural aspect of such a work a matter of some importance actually dare not avow their feeling, for fear of being ridiculed. That is what we have come to.

It is in the hope of inducing a more adequate appreciation of the subject on the part of some at least of those who have not hitherto given any consideration to it that the foregoing attempt has been made to indicate, in a brief and general manner, the leading principles and object and bearing of architecture, or the art of expression and character in building. We look on the amelioration of town architecture in this country as the problem of the modern architect. We have had the age of palaces and of cathedrals—of the feudal and ecclesiastical type of social organization. The age of the cathedral is past, and we have now to provide, not a feudal or ecclesiastical, but a federal architecture—to bring the art home ‘to men’s business and bosoms,’ and to adorn and dignify the every-day commercial and domestic life of the people at large.

THE CRITIC CRITICISED.

“THE Building Strike,” says the *Irish Sportsman and Farmer*, “is a subject only within the scope of a sporting and farming paper, inasmuch as both sportsmen and farmers are at times large employers of the labour of building tradesmen.” Having already alluded to our contemporary’s remarks on the carpenters’ strike in our last issue, which has drawn forth a reply from which the above sentences are an “elegant extract,” we would not have returned to the subject now only the school-master is evidently abroad, or perhaps on the long vacation. In charity, we would ask of the editor, on his return, to make some apology to outraged public opinion, committed in the person of perhaps some envious sub., if not through his utter incompetency. Is the phonetic system of writing about to be introduced by our contemporary? or has he patented an improved system of Fitman? The word “advantage,” as we have been taught to use it, conveys the sound and sense, in our humble opinion, better than in our contemporary’s way, which reads *advainage*, and we have been taught to write sense, not “*sence*.” Further, our critic informs us: “To show him (the IRISH BUILDER) that we are not ‘provincial,’ and that no matter on what subject we choose to write, we are pretty well informed, we will just give him our matured views on the matter of the present strike.” Here is a direct challenge to us and others to look elsewhere in the paper for some subject on which the critic deigned to write. “In

the days of close and well-ventilated theatres,” &c. We opine the critic means “ill” instead of “well-ventilated.” And again, we thought that the town of Drogheda was spelt as we write it, and not *Dragheda*. There is a “drag” certainly on somebody’s intellect in the office of our contemporary. Surely an Irish “Sportsman and Farmer” ought to know something about the properties of native “potheen.” Has he got a touch of the terrible cholie that makes him write “*alcoholic*” for alcoholic? We have further wonders in store for our readers, if they will but only read and inwardly digest the following sentence of our very sensible critic, who is “pretty well informed” on every matter on which he may choose to write. Listen: “He said [Mr. Gunn] that Dublin was not the critical and judicial theatrical place [murder in Irish!] that it formerly was, and that its flatterers in this way were doing what flatterers always do, preventing it from learning; but he hoped to have the pleasure of teaching it. He said that being in a great measure a provincial town (dramatically speaking) [did he, really?], and not a metropolis [poor, disfranchised city!], it was impossible to provide for its wants as a capital, but he hoped it would be one, and he would do his best to make it so. He hopes, in fact, in time to give native talent of all sort, only mixed, not adulterated, with foreign,” &c. What can our readers make out of the above medley? We give it up. We leave the problem, or problems, for solution to “Drs. Churchill and Beatty and an exalted divine.” When will writers on the “stud and stable,” “dog and cat” shows, turkey-hens and guinea-pigs, keep to their own professional labours, and leave architectural and building matters alone? The criticism of our contemporary might pass muster in the cock-pit, or on the top tier of a “provincial” theatre, among the “gods,” but coming from the *sanctum* of a sporting editor and a gentleman farmer’s journal, we can only view it in the light of a jest, minus the orthography and the sense.

ÆGHS.

ARCHITECTURAL NOTES AND QUERIES.

PERHAPS some of the readers of the IRISH BUILDER could afford information of the year in which George Semple, a Dublin architect of some eminence, died. He re-built Essex Bridge in the middle of the last century. He was a friend of Dr. Ruttly—who wrote a natural history of Dublin, and Semple published a volume about 1776 on “Building in Water,” to which was added his “Diary on the Re-building of Essex Bridge.” The volume is very scarce now. It is illustrated with many very good copper-plates. The book will, even at this day, be useful to those who may have aught to do with bridge-construction over the Liffey, or other tidal rivers.

What year was Edward Smyth, the Irish sculptor, born in? He worked with James Gandon, the architect of the Custom House, on the figures of that edifice, and the emblematical key-stones in the arches of Carlisle Bridge were executed by him. The figure of St. Andrew, that used to surmount the doorway or porch of the late Round Church in St. Andrew-street, was also one of his works. Where is this statue now? Is there any memoir of him to be had in any Irish publication? In what year did he die, and where do his remains rest?

A work was published on architectural and building matters by John Morrison in the latter end of the last century. He was father of the late Sir Richard Morrison, architect, and grandfather to William Vitruvius Morrison. Where can a copy of this work be procured? Did the late Sir Richard Morrison leave any work in manuscript at his death? Information will oblige enquirer.

Are there any relatives of the late Francis Johnston, the architect, founder of the Royal Hibernian Academy, alive? Did he leave any family, or did he contribute any material to the literature of architecture?

Thomas Cooley, the architect of the Royal Exchange (City Hall), died in the forty-fourth year of his age, in Anglesea-street, Dublin, leaving a son and a daughter—his wife having previously died. Can any of the readers of the IRISH BUILDER tell where he was buried, and where a notice of his works may be found?

Thomas Ivory, a native of Cork, died in Dublin in the 54th year of his age, in the year of 1786. He was a Dublin architect of some note. He designed Newcomen’s Bank at Cork Hill in the last century; also many private mansions for gentlemen. It is also said that he sent in designs for the Four Courts, and for Newgate. Where can an extended notice of his life be had? Was he buried in Dublin, or carried to his native city.

Who was the architect of Powerscourt House, William-street, Dublin; Charlemont House, Rutland Square; the Duke of Leinster’s (the Dublin Society’s House), Kildare-street; and the building now occupied by the Catholic University? Buck Whalley, otherwise Jerusalem Whalley, it is said built it—i.e., it was built for him, but who was his architect? The Dublin Lying-in Hospital is said to have been erected by a foreign architect, practising in Dublin in the last century. What was his name—when was he born, and in what year did he die, and what other works are attributed to him in Dublin or elsewhere through Ireland?

By answering these queries, or any of them, will render a service to the guild of architecture and art, as well as confer a favour upon one of the profession who thinks it a pity that so little is publicly known, or known at all, of the lives and labours of the elder architects and artists once practising in Ireland.

London.

GEO. GILBERT RAYMOND.

HOW “THE STRIKE” GOES ON.

A FORTNIGHT has passed over since we announced in these pages that an order had been issued to the members of the “Regular Carpenters” body commanding them to stop work if their demand of 6d. per day advance upon their present rate of wages was not conceded by their employers. In the same number we stated that the “Regular Slaters” had also demanded 6d. per day advance, and that the “Regular Plasterers” had followed suit. Almost at the same time the stone-cutters turned out for 6d. per day increase; so that as we write there are four different branches of the building trade on strike in Dublin. Contrary to expectation, however, the Bricklayers have given six months’ notice of their intention to seek an advance also of 6d. per day, and accompanied their request with a very polite and considerate resolution. This is as it should be, and although their fellow-toilers now upon strike may differ with us, we feel it our duty to say that the Bricklayers have set a wise and thoughtful example which we would in all fairness and in the best



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possible spirit recommend all other trades to follow.

We have heard some rumours respecting the intention of the Stone-cutters to re-call their order of "stop work," and to do as the Bricklayers have done, and that the difference between the Plasterers and their masters was about to be settled by arbitration. While we sincerely hope that all disputes between masters and men of every trade may be satisfactorily settled, even before we read in type the lines which we are now penning, we must say, in glancing at the struggle of the Carpenters, that their cause seems to be in the greatest danger of defeat. The action of the Bricklayers, in particular, has given them great reason to be angry, and many and bitter are the complaints uttered against the course those men have adopted in giving six months' notice. It has been said by some of the Carpenters, and we believe by other trades as well, that the Bricklayers should have waited until the strike of the carpenters, plasterers, &c., was settled, before they gave notice. The Carpenters, we have heard, are greatly incensed at the action of the Bricklayers, and some of them have sworn never to adjust a square, or "shoot" a plumb-rule for a bricklayer as long as they live! We will not be blamed, perhaps, if we say that we are inclined to believe this statement, since some of the officials belonging to the "Regular Carpenters'" body, threatened never to buy a copy of THE IRISH BUILDER again, because we published a report of the proceedings of the meeting convened to discuss the advisability of demanding an increase in their pay. We are sorry to see the Carpenters exhibiting such a narrow feeling, and we are also sorry to find the *Irish Times* giving space to one of their body to make himself and his fellow-workmen appear more ridiculous and intolerant than our report of their disorderly meeting could make them. We allude to a letter which appeared in the columns of our contemporary, signed "Bernard Gaffney." This person says that "by inverted commas" we would fain point out with a sneer the name 'Regular Carpenters.'" Let us assure him that he has fallen into a mistake. "The Regular Carpenters of Dublin," we understood, was the name given to the "body," and as is usual in speaking of the name we marked it as a quotation, and that was all. "Bernard Gaffney," or, if we do not offend, "Bernard," goes on to say: "We were wantonly calumniated," and that our reporter was actuated by "jealousy and pride." We cannot for the life of us see how "jealousy and pride" could influence our reporter one way or the other in giving an account of a trades' meeting. He went there to hear and to see, and to report accordingly. If the meeting was orderly, he would have said so. Unfortunately for the credit of our country, not to say the wisdom and good sense of the Carpenters, it was not so. We ask, why not?

"Bernard Gaffney" then goes on to take exception to the advice which we ventured to give the "Regular Carpenters." We suggested that proper seats should be provided, simply because there were none save one or two, and that the members should not be allowed to smoke in the room during business meetings. We cannot see that there is any great harm in this advice, and we think, with all due deference to the editor of the *Irish Times*, that if he echoed our advice, it would be more to his credit than to insert the letter in question. "Bernard Gaffney" says also that we "asserted a falsehood" when we stated that a "Strike Committee" was formed at the conclusion of the meeting. Now we have reason to believe that "Bernard Gaffney," the writer of this letter in the *Irish Times*, is the same person as the "Bernard Gaffney" who, as Chairman of this very Strike Committee, ordered the men to strike work if their demands were not complied with on the 3rd inst. If this be so, will our readers believe what he states in the *Irish Times* "that there was no such committee formed"?

The strike of the carpenters is becoming a serious matter—it has left about 300 men

walking about, while there is plenty of work to do, therefore we appeal to the Builders not to prolong it to the detriment of such a number of men, the majority of whom we believe erred more perhaps through the head than through the heart. We also appeal to the carpenters to be wise, if not in time, at least when they begin to discern a prospect of defeat. If they consider themselves about to be worsted in the struggle, we hope they will yield before matters become worse, and do so with a good grace, seeking for better counsel, more unity, and avoiding precipitation in future in their affairs. We are in a position to state that there are some of their employers not unwilling to, perhaps, yield the full amount of their present demand, and only refuse to concede it on principle. We would also wish to call the attention of the public generally, and carpenters in particular, to an offer which we understand has been made by one of the most extensive employers of the craft in the city. As a guarantee that men should feel an interest in the success of his establishment he proposes to distribute say £200 amongst the men who would contribute to its prosperity by their good workmanship and regularity. If profits increased 25 per cent. to distribute another £50; if 50 per cent. £100; and so on. We really believe that this is a very liberal offer, and that it would be beneficial to the men who would embrace it. Nay, we are informed that there are men now out on strike who have taken advantage of this offer, that they have received money from the employer who has made it, and that they are perfectly willing to resume work at the old rate, and take their chance of receiving their share of the *bonus* thus thrown in their way. Ought not the society allow the men of this firm to resume work?

We have been authentically informed that many customers of the principal builders have consented to wait any time for their work to be finished, rather than yield to the pressure of the trades' exorbitant demands.

A CITY REFRAIN.

SWEETEST Liffey!—that's a muddle.
Dearest Poddle!—that's the same.
Dukes and dames may drive and cuddle,
Aldermen go on the fiddle,
Anna still preserves her name.
Laughing Liffey!—that's a scandal.
Limpid Poddle!—that's the same.
The Lee cannot hold a candle
Unto you, and yet a handle
She is making of your name.
Deauteous Liffey! 'tis a pity.
Brilliant Poddle! 'tis a shame.
Idolized by wise and witty;
Once the glory of our city—
Now the very dregs of fame.
Anna fallen! Anna filthy!
Outraged Anna! free of blame,
Smite with plague the powers that silt thee;
Nemesis swoop down the guilty,
Corporeal and Corporate shame.
Gone the great, grand public spirit
That our Councils had of yore;
Jobbers now get all the merit;
Taxmen, the chief posts inherit;
And our city is no more.

CIVIS.

["Civis" must have really intended the above verses for our comic contemporaries, and have misdirected them. As they have reached our office, however, and are not point- less, we extend to them the liberty of the press.—ED.]

"NEW BROOM" FOR OUR CITY.

On Wednesday a special meeting of the Corporation was held for the purpose of considering a report from Committee No. 1 on the scavenging of the city.

The LORD MAYOR in the Chair.

The report recommended that the Corporation should make the experiment of taking the entire management of the scavenging of the city, purchase horses, and erect stabling at four or five different points in the city, instead of continuing the present system of a horse contract, and having all the horses and carts collected in one central dépôt. The present contracts would expire on the 1st of September.

Mr. Dockrell referred to the complaints

frequently made of the very ineffective way in which the scavenging had been performed. The great difficulty they had had to contend with was the horse contract, which alone took something like £5,200 a year from the sum allocated for scavenging. Under the present system all the horses were stabled in one place, and the consequence was that time was lost in getting them to the various distant points at which they were to work. The committee now proposed to have stables in different parts of the city, and it would be necessary in several instances to build these stables. They had appointed one inspector for whom they had supplied a gig, and this inspector alone would be responsible to the committee for the due performance of the work. The contract system had failed not only here, but in Liverpool, Glasgow, and other large towns. The committee proposed that they should have power to purchase 40 horses. The city of Manchester, which was very clean, had only 31. It was intended to place these 40 horses at various dépôts in the city. The committee asked leave to borrow a sum of £2,000 by procuring the acceptance of the City Treasurer to a bill for that amount. If No 1 Committee could effect the scavenging of the city, it would be one of the greatest feats next to the purification of the Liffey! that could be effected. It was their wish, if they had the means, to carry out this important object, and to spare no pains in trying to make the scavenging a success.

Mr. Byrne stated that the committee had been informed by their superintendent that the scavenging would be more effectually carried out if it were not for want of control over the drivers of the horses and carts who were in the employment of the contractors. The horses and carts with their drivers sometimes did not get on their appointed ground to begin work until half-past seven or eight o'clock under the present system, and often after a quarter of an hour's work they went back again to the central dépôt for breakfast time, and could not be got out again and put on the streets till 11 o'clock or later. It was true they had under the present system the power of deducting from the contractors the cost of doing the work which was left undone, but fifty times the amount which they could deduct would not compensate the citizens.

Mr. Bury believed it to be a mistake for any public corporation to scavenge a city, and that if four contracts were given out, the work would be better done than by any public body.

Mr. Dennehy expressed himself in favour of the policy of the report. The proposed system was the only one that would work well. Numerous complaints were made last winter of a state of the streets such as had not been known previously in the memory of the oldest inhabitant! The committee had their hands tied, and whilst the streets were swept, the sweepings were not carted away.

Mr. Tickell observed that the taxation of the city was at present amazingly high, and this proposition was likely, if adopted, to increase it. He was in favour of dividing the work, not into four districts, but into two—north and south.

Mr. French objected to contracts altogether. They had already got into one lawsuit by their former scavenging contract, and he believed they would not get rid of their present horse contract without another lawsuit.

Alderman Plunkett, without raising any objection to it, warned the house against what he believed to be a dangerous and expensive experiment.

After some further discussion the report was adopted, with but two dissentient voices.

In our opinion a considerable saving could be effected in the expense of scavenging, by using a better quality of road material. In the matter of gravel spread on the surface of newly-paved streets, it is notorious that the greater portion of it is simple yellow clay, which after rain becomes a mass of sludge, to be swept up on the next visit of the scavenger. Witness the state of the roadway at Trinity College, paved within the past week.

ON THE STRENGTH OF MATERIALS.*

LAST year, when the subject of the Architectural Examination was being discussed, I stated that I thought the first necessary for an architect was to be able to build soundly, and this, which I thought a truism, was impugned, and many other things were considered by as many architects as the first necessities.

Shortly after this I was going over a London house with M. Robert Fleury, the French artist, who after passing some slight encomiums on the house, kept repeating "It is a very solid house." I looked rather surprised when he said, "What I say may surprise you; but though it is an excellent thing to have a house well arranged, elegantly designed, and beautifully decorated, the most essential thing for me is that it does not fall on my head." In a large city like London, where space is valuable and light is scarce, every device is sought to diminish the size of the supports, and we find every now and then that buildings do tumble down in the course of erection. That these deplorable accidents may not happen, it is not only necessary to know the science of construction, but also to be acquainted with the exact properties of the materials with which we build. In one of Professor Huxley's "Lay Sermons" ("A Liberal Education, and Where to find it") he points out how at every step we are educated by Nature, and also the manner of that education. He says, "Nature's discipline is not even a word and a blow, and the blow first; but the blow without the word. It is left you to find out why your ears are boxed." When we are children, and we are getting instruction from Nature in the art of balancing ourselves, our want of knowledge of the laws of statics and mechanics is punished by a tumble that hurts us; but when our buildings tumble down the injury is often ruin to ourselves and others, and we ought as much as possible to avoid the risk of any such terrible catastrophe.

Construction is a science; that is to say, many of the general laws of stability have been discovered, and by making ourselves acquainted with these laws we can insure a success that before was only given to the most brilliant constructors. Shakespeare says, "There was a time that when the brains were out the man would die;" that is not the case now, but we can in many instances provide ourselves with a knowledge of the laws of stability, and do almost as well as if we had brains. Before proceeding with my subject, I may quote a saying of the late Mr. James Walker, that no building ever failed for want of science, but only from want of care in the selection of the materials, and of the care with which they were put together; and although this is perhaps an exaggeration, yet as we allow for imperfection of materials and workmanship a margin ranging from 1,000 to 400 per cent., extreme vigilance and accurate knowledge will very frequently prevent accidents. Young men, especially, are too apt to consider that the constructive part of architecture is not worth their attention, and not only lose many opportunities of getting valuable experience, but also lose those inestimable habits of thought, of observation, and reflection that a greater attention to construction would give them.

It is impossible to treat of so vast a subject in any but the most superficial way; but if I can impress on you the absolute importance of attention to this subject, and give you some few hints, the time spent in listening to this paper will not be wasted.

Foundations.—I will begin with the soil on which our buildings are built, for as Sir H. Wotton happily expresses it, "If the foundations dance, it will mar the mirth of the whole house." The foundation on which you may build without much thought is solid rock—rock with horizontal strata—or chalk. Those with which some care must be taken are sand, clay, marl, gravel, or ballast. The

foundations on which you should not build if you can avoid them are mud, silt, made-ground, slate-shale, loose decomposed rock; and those on which you cannot build are soft mud, bog, running sand, loose peat, soft vegetable mould. In the case of large platforms of solid rock, although it may be well to ascertain what will crush it, yet if the surrounding mass prevents escape even if it does crush, your building cannot generally come to much harm, provided the rock is homogeneous; but should it be composed of a conglomerate of materials of unequal hardness, the crushed parts may leave up points and split your walls. Sand must be retained in its place and kept dry, or it may get blown away, or may sink by wet getting at it. You know that if you ram a popgun with dry sand, it will shrink on the addition of water; but with these precautions we cannot call sand a bad foundation, as the Pyramids are said to be built on it. Clay is a good foundation, if it be homogeneous and very stiff, protected from heat and from water; but it is perhaps the most treacherous of all moderately good foundations; it shrinks and cracks when exposed for long to a hot dry air. During the late hot summers, many of the houses round London have settled so much as to require under-pinning, or pulling down. I have heard of serious settlements occurring by the roots of trees absorbing the water from the clay. On the sides of hills clay often slips. Deep sewers, wells, or cuttings will often tap the water veins and cause settlements, and water getting at it will make it so soft as to be squeezed up all round the walls and piers. Gravel or ballast forms an excellent foundation, where it is thick and in large platforms; the two great dangers are, that it is a superficial stratum with holes or soft stuff beneath, or running water gets to it and washes out the sand. In the bad soils it is well to go down to some solid stratum if possible, and in those on which you cannot build you must either sink pits and pump out the water and loose stuff, and put in concrete, pile, or use cylinders of brick or iron.

Having got so far, the question next arises, How much weight can be put on a given foundation? I suppose that you have ascertained by boring the thickness of the stratum on which you build, and the nature and thickness of those below it. In default of the actual experience of the weight that the stratum you have to build on will carry, the best expedient I know of is the one recommended by Rondelet; to put up a pile engine, and drive the monkey or a dolly into the ground by repeated blows. Suppose your dolly to be a foot square, and the momentum of your monkey when striking twenty tons, you see how many feet or inches the dolly sinks into the ground in a given number of blows and that will enable you to calculate approximately what weight you can afford to put on, and what sinking you can afford to allow. If your building will not admit of this expense, you can drop an iron bar into your ground from a given height, and calculate it in the same manner as before; or you may roughly take the number of square inches in your boot-sole, stand on one leg, and observe the amount of sinking, and as you know or can ascertain your weight this may give you some sort of guidance. Mr. Barlow stated that two tons to the foot superficial was carried by the London clay without appreciable settlement in the foundations of the Midland Railway Station. Mr. Hawkshaw stated that he put eight tons on the foot on the London clay in the piers of the Cannon-street bridge on the Thames; and though I cannot find any calculation, my impression is that the S. Katherine's dock warehouses give a pressure of three tons to the foot on the clay or gravel when empty, and five tons when full of goods, which weight per foot is put on the different soils. The most valuable data are got by the combination of many hands, and if those of you who are engaged in offices or on your own buildings, would take the trouble of calculating the weight per foot that is put on the soil, and its nature, no more valuable addition to our knowledge

could be made; it would be invaluable to yourselves, and only take a little time and patience.

Concrete.—The main artificial foundation used in London is concrete. It is needless to say that this is only a cheap substitute for brick or stone work, the ground eventually bearing the weight. We are very careless in the matter as compared with our French brethren. As you know, ballast or gravel that satisfies us or the clerk of the works by its look, is roughly mixed by labourers in the nominal proportion of six of ballast to one of lime or Portland cement. If our buildings stand, few of us take much trouble to ascertain what weight they will bear, and the wildest notions often exist on the subject. The great bearing power of concrete is often due to its being confined by the adjacent hard earth, and if it were mostly surrounded by loose or soft wet stuff it would fail. The greatest care should be used in getting clean, well-washed ballast or clean gravel, free from clay, but the red sand and gravel, when not clayey, causes the concrete to become very hard, in consequence of the iron in it. Ground lime is the best, when it can be relied on to be good well-burnt lime, used fresh; but many of the smaller sellers of lime send out as ground lime either sweepings, or ground lime that has been kept so long as to be absolutely worthless, and it is always necessary to have some from each bag slaked, to see that it is fresh. Stone lime is absolutely useless for concrete where there is running water, as the lime is rapidly dissolved and the ballast only left; and dirty water will sometimes prevent the concrete from setting at all. Blue lias lime or Portland cement should always be used in wet foundations.

To show how fallacious is the usual belief of the strength of concrete, I had a piece quarried out of the foundation of a building that was pulled down. The concrete was lime concrete of six of ballast to one of stone lime, and had been in the foundation for about three years. One foot of it weighed 152lbs.; it split with a weight of 21 cwt. on the foot, and crushed to powder with 42 cwt. to the foot super. This was, no doubt, very bad concrete, but it was put in by a first-rate London builder, under a clerk of the works. I had some experiments made on the concrete used in a wall, built of one of Portland cement to six of ballast. The concrete weighed roughly about 140lb. per foot cube, had been set about two months, and exposed to the air. The three specimens bore 26, 17, and 24 tons respectively, and some years afterwards it was found impossible to remove any part of the concrete except by means of wedges.

In using Portland cement, a rough test of its goodness (provided it be obtained of a respectable maker) may be obtained by its weight, which should be 1 cwt. to the struck bushel. The ballast should be clean, the whole well mixed together, and only sufficiently wetted with clean water to make it into a paste; and if thrown into water it should be allowed to stand for some hours before it is used, and then lowered in boxes.

Mortar and Cement.—I had occasion to make some experiments on mortar composed of chalk lime and green pit sand, and I think the results are sufficiently important to call your attention to them. Mortar composed of—

1	of lime to 2 of sand bore (per sq. in.)	63lb.
1	" 3 "	106
1	" 4 "	106
1	" 5 "	51
1	" 6 "	34

These had been set for about 140 days, or twenty weeks, were mostly in 1 in. cubes, and the weight indicated showed when the first symptoms of cracking began, but the difference between the cracking and crushing weight was trifling. Each weight given is the average of about six experiments, so that you see that if mortar is too "fat" it will bear but about half the weight of mortar mixed in the proper proportion, and if too "short," from one-half to one-third. I had only enough to try two experiments for tension of mortar of one of lime to three of sand, and one broke

* By Mr. George Aitchison, B.A. Read at closing meeting of the Architectural Association.

from a flaw before any weight could be applied, and one bore only 22lb. to 1 in. They had been set for about fifteen weeks. Now Rondelet gives a weight of 400lb. to the square inch for mortar of three of river sand to two of lime, set for eighteen months; and Professor Rankine gives 50lb. as the tensile strength per inch of mortar. It may be well here to draw your attention to the fact that mortar sets very gradually, and that the greater part of the failures in buildings results from piers being loaded by the superincumbent weight while the work is still green, or what is worse in warehouses by the building being run up rapidly and the floors loaded months before the interior mortar has had time to set. Whenever rapidity of building is required the piers at least should be built in Portland cement. Mr. Grant found that a square inch of Portland cement bore in tension, after one week—

1 of Portland cement to	1 of sand, 97 lb.
1 "	2 " 52.5
1 "	3 " 27

Thus, you see in comparing the tensile strength, that 3 of sand to one of Portland cement is stronger in one week than mortar of 3 of sand to one of lime in fifteen weeks.

I will only mention one point about Roman cement, for one would use it in London where Portland cement can be got, on account of the great care required to be used in its manipulation. An idle labourer will mix more than his bricklayer wants, and keep chopping it up or give it too much sand, and it will be of no more use than so much mud or dirt. But where river walls have to be pointed or drains constructed through which water is rapidly flowing, the quick setting of Roman cement makes it invaluable for the purpose.

Bricks and Brickwork.—Of these there are an immense variety in England, and all varieties have some distinctive or useful quality. They are known as the "stock," the "place," the "Staffordshire," or black brick, the "malm," (divided into first and second quality), "cutters," and "paviours," the white, red, and black brick, the compressed and the perforated brick, commonly known as "Peart's," or "Burham" bricks. The black or Staffordshire brick is useful for paving, for making angles of gateways, or of piers subjected to blows from carts or rough usage, and for the building of piers where space is required, as they will resist immense pressure. The coloured brick is mostly used for facing, the cutters and paviours for paving and groin points or arches; but "stock" and "place" bricks are the principal brick you will have to deal with, and little is to be said about "place" bricks, as no architect uses them if he can help it, they being the "stocks" that are not thoroughly burnt, being outside the clamp. They are frequently spoiled by rain, have bad ends and edges, and are mostly reddish, soft, and porous. The London gray "stock" is the perfection of a brick for ordinary building. From "breeze" being mixed with the clay, these bricks get thoroughly burnt through supplying the fuel to bake themselves in their own composition. The best are of a yellowish gray, have a fineish texture, are heavy, ring well, do not easily break, and are free from stones. Those that are very dark are apt to be twisted and heavy, and, being half-vitrified, are very brittle. Having seen that the bricks are good, that the mortar has been duly made of good materials, and thoroughly mixed in the right proportions (and, if you can afford it, it is best mixed by a pug mill or rolling pans; mixed by hand, you should scrape down a piece of the mass with a spade, to see that there are no lumps or streaks of pure sand or lime), the next process is to see that the bricks are properly laid, with the proper bond; the men being apt to crop their headers, and thus leave vertical joints in their work, and if work is faced with more expensive bricks, the builder himself usually encourages this wretched workmanship. To make excellent work, each brick should be wetted, but this can rarely be afforded. The

mortar should not be too stiff, but sufficiently liquid to run between the joints, the object being to have a perfectly solid wall, every space between the bricks being filled up solid with mortar, the great fault of London brickwork being that the cross joints are left unfilled for half their depth,—a wet brick, a thin joint, and all the cross joints filled in, being the perfection of brickwork; but the labour is so great to attain this, that a perfect bit of brickwork is rarely to be found, the nearest approximation being when the work is well grouted with thin mortar every foot in height.

I had experiments made on 9 in. of brickwork, set in Portland cement, 6 of stocks, and 6 of malm paviours, with the following results:—The crack weight per foot superficial of the stocks was 31 tons, that of the malm paviours being 25.2 tons, and the crushing weight was about two and a half times the cracking weight; but though these bricks were picked and set by a careful bricklayer for the experiment, one specimen was only one-third of the average strength in the stocks, and two-fifths in the malm paviours; therefore, when you allow for the imperfection of materials and workmanship in ordinary work, from five to seven tons is the utmost that can be allowed as the bearing weight of brickwork. In almost every case I have seen of the failure of brickwork, it has been through the badness of the foundation, or from the work being overloaded while green, or from gross imperfection of workmanship, except in the cases of "buckling," or falling outwards.

Masonry.—In London almost all the stone work is ashlar, except in the case of window and door-jambes, columns, or small main piers, and in those cases in which stone is used in the shape of stone landings, balconies, and corbels. As finer joints and more perfect workmanship are required in stone work, the excellence of the foundation is of even more importance; and where the ashlar is very thin, regular bonding courses should be used to carry the weight of the thin superficial face work, and great care must be taken with the workmanship of backing to prevent unequal settlement of the outer and inner faces. Where it can be afforded, the brickwork should be built in cement. In piers and columns all joints should have a piece of lead over the whole surface some $\frac{1}{2}$ in. from the face, so that all unequal settlement may be counteracted by the squeezing of the lead, and the joints should be pointed after the whole building is complete. It is so much easier for a mason to get his stones laid by setting them on a thin edge and running them than any other way that without the greatest care is taken he is sure to do so, and then, if much weight comes on, the outer face is split or "spalted," as in the granite columns of the Holborn Viaduct; or if the stone be laid on brickwork the outer face of the brickwork is split, very often causing serious alarm, if it does nothing worse.

No one should use stone, unless it is from a well-known quarry, without having at least half a dozen cubes crushed to test its power of resistance, and from one-tenth to one-quarter only of its crushing weight should be given for its utmost load. The tensile strain of stone is as a rule still unknown, and it is almost as surprising that manufacturers do not give the cracking weight, tensile strength, and cross strength of the stones they supply, as that architects should so long have been contented to solve their most difficult problems by guesswork. I could hardly have believed that the tensile strain of granite was still unknown until I had to make inquiries for some granitic corbels, and I was then obliged to forego their use and substitute iron, as the work would not stand the cost of experiment. We are not to blame the Mediæval architects, who had none of our appliances for testing, that they trusted to experience, observation, and daring alone, for their pendentive constructions; but if we want to imitate their bold use of the tensile strength of the stone we may as well ascertain what we have to trust to.

Woodwork.—As fir is almost exclusively

used for construction except in the few cases when oak story posts are used, I shall confine my few remarks to fir. Dry fir weighs usually about 32 lb. to the foot cube, but a piece cut off a balk just floated up will weigh as much as from 45 lb. to 48 lb. The utmost weight it will bear on the grain to crush it is about 2 tons to the inch and about $1\frac{1}{2}$ tons to crack it, while at right angles to the grain it will bear but little more than 8 cwt. to crush it per square inch, and about 6 cwt. to crack it. Its tensile strain is from 3 tons to 6 tons in the direction of its fibres, but only about 5 cwt. across them, and about 4 cwt. in cross strain. By this you will see how very much smaller a piece is required when in tension than when in compression, and from its great incapacity to resist pressure at right angles to its fibre how very disastrous it is to place many posts or girders or joists one above another, on account of the compression of the piece between. Choose clean moderately fine-grained timber, with plenty of turpentine in it, without large or dead knots. Take care that the ends lie on lead, if possible, or some other material that does not absorb moisture nor rapidly condense it, and always have free ventilation round the ends of your timbers. I may here remark that rounded joints take off two-thirds of the strength of the timber, although that form is much affected by old clerks of the works and builders. Not more than one-tenth of its breaking weight should be put on timber, and in calculating its strength take the solid part only when there are mortices or notchings. I will only add that it is sometimes sought to strengthen timber by iron plates, commonly called sandwich girders, or by iron ties; but as these two materials don't work together, a little stiffness and little or no strength is gained by the proceeding. I had some girders experimented on for the purpose of ascertaining this. The girders were two balks 13 in. square, bolted together, with a clear bearing of 16 ft., loaded in the middle. This broke with 40 tons and a deflection of 2 in. Another of the same scantling was tried with a sandwich plate $\frac{1}{2}$ in. thick between. The iron broke with 30 tons and a deflection of one inch and nine-sixteenths, and the timbers afterwards with 40 tons and two inches and five-eighths deflection. In the second experiment, as before, the iron broke with 45 tons and $1\frac{1}{2}$ in. deflection, and the timbers at 50 tons, with one inch and eleven-sixteenths deflection. Similar timbers were trussed with two $1\frac{1}{2}$ in. tie-rods, and one timber broke with 35 tons and two inches and three-eighths deflection. A piece of timber $12\frac{1}{2}$ in. square was broken, with a clear bearing of 8 ft. 6 in., the weight applied in the centre. It bore 35 tons, with a deflection of two inches and five-eighths. Another piece, 14 in. deep and $14\frac{1}{2}$ in. wide, was sawn down and trussed with a fir trussing, with oak posts and abutments bolted through, and the ends secured together with iron bars three inches by five-eighths of an inch. This broke with 35 tons, and a deflection of five-eighths of an inch.

Ironwork.—Cast iron weighs about 450lb. per cubic foot, 37 $\frac{1}{2}$ lb. per foot superficial one inch thick. The tensile strength of cast iron is from 7 tons to $7\frac{1}{2}$ tons, and its compressive strength from 35 tons to 65 tons, or the average ratio of its compressive to its tensile strength is as 1 to 6.5, and therefore the ratio of the lower to the upper flange of cast iron girders should be in this proportion. In castings generally, the parts should be arranged so as to be nearly as possible of the same thickness, to prevent cracking in the shrinking. Cast iron columns are nearly twice as strong as the same metal cast in the cross shape, but the latter are more easy to examine, and if unequally thick can be rejected, while it is difficult to detect this in a hollow column. A column with flat ends, or a disk, is three times as strong as one with a round end, like a ball and socket joint, and where a column is out of the upright, so that the strain passes through its diagonal, its strength is reduced to one-third. A slight additional strength is given to a column by in-

creasing its thickness in the middle, or giving it an entasis. One quarter of the breaking weight is a safe load. In wrought iron the tensile strength is about 20 tons per square inch. Its compressive strength is unknown, as it begins to flatten with 10 tons to the square inch. Its shearing strength is about equal to its tensile. In all riveted work, great care must be taken to have the butt-joints accurately fitted, the rivet-holes exactly opposite one another, and the rivet should fit the hole tight, and be riveted up so that it bites, and does not chatter, when struck by a hammer. A hole cannot be punched through a plate of less diameter than the thickness of the plate. The thin webs of wrought-iron plate girders should be stiffened at intervals by upright pieces, or the girder is apt to buckle or crumple up. One fourth of the breaking weight is the safe weight.

I can only add that I hope these hasty notes will give you some little practical hints, and will have the effect of drawing your attention to this most important subject; and be sure you can never rival the works of the middle ages unless you are masters of your materials, nor can you really make things reasonably beautiful without knowing the forms they will best lend themselves to, nor the places where you may safely remove and advantageously add material.

CARLOW DISTRICT LUNATIC ASYLUM.

At a largely-attended meeting of the governors of the Carlow Asylum, held on Monday, Captain Beresford, D.L., in the chair, and at which Dr. Nugent, Commissioner of Control, and Mr. Wilkinson, the architect, attended, the proposed increase of accommodation and the necessity of certain improvements were fully entered into and explained by Dr. Nugent, as well as the plans for carrying them out as designed by Mr. Wilkinson. The board approved of the plans. The additions, similar at either side, and which extend the façade by about one hundred and thirty feet, will be terminated by projecting buildings with large oriel windows. A detached Gothic structure, containing two separate chapels, for Protestant and Catholic worship, with a porch to each, is to be erected on the grounds near the female division. It is intended to remove the present out-offices and all the walls at the rear of the asylum, so as to have an unbroken communication between the land originally taken and about twenty-five statute acres, with ornamental timber, &c., just purchased. The total contemplated expenditure is within £15,000.

CORRESPONDENCE.

THE MULLINGAR COMPETITION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As a competitor in the above competition, I beg to offer a few observations relative to said competition; and, in doing so, I do assure you that my mind is devoid of any animus whatever. I say that I could have built what was required for the sum named, provided the walls were "*rubble, and no ornament whatever.*" These two things were a part of my instructions.

That the member of the committee is quite in error when he supposes that any architect would send in competition plans, if the committee reserved to themselves the right of rejecting all plans. That reservation was not in the advertisement, and they were bound to give the premiums, which, I suppose, they have done. When the committee had premiated two sets of plans, they were, perhaps, at liberty to get made other and more suitable plans; and then a somewhat serious consideration steps in. If plans were "commended," but could not be adopted, why not incorporate with the adopted plans that portion of the "commended" plan? And if this was done without the knowledge of the man who sent in the plans "commended," it would be a great injustice to him; and if the com-

mended parts be not adopted, why say the committee, "We commend your plans"?

This is just my case. My plans were returned "*commended,*" but I was not told what for.

I shall be glad to send you my plans, and allow any committee of three or five disinterested professional men to examine and decide as to the actual merits of all the plans, if that can be done; and report whether, in their opinion, any portion of any plan sent in for competition (except the two premiated sets of plans) has been incorporated in the plans adopted.—I am, Sir, your most obedient servant,

FAIR PLAY AND NO FAVOUR.

"PROPOSED ADVANCE OF WAGES."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having read a letter which appeared in your issue of the 1st inst., headed as above, and signed "J. D.," in vindication of the inadequacy of carpenters' wages to supply tools and other necessities, I beg to solicit a small space in your very influential journal to express my astonishment at the very ignorant remarks my friend "J. D." makes regarding books, tools, &c., as if every other trade could dispense with them, and that carpenters cannot. I don't mean to dispute the right of their claim to more wages, but I would like to know by what right have they a claim on the builders of Dublin more than any other trade. Why cannot the carpenters look for more wages without interfering with the other trades, by telling them that they will not be as well off as their fellow-tradesmen, even with the proposed advance? I don't know what they mean, except they want to ignore the right of other trades looking for an advance. I ask "J. D." to tell me what science is there attached to their business more than any other trade that requires the study of books to accomplish? Has not machinery done away with the most critical part of their business, such as moulding, &c., and left it only a mere trade of fitting? whereas a mason, for instance, would require study to accomplish a piece of tracery work, as it cannot be done in any other way except by the hand; so, therefore, I say other trades have a stronger claim on the builders of Dublin for higher wages than the carpenters. I can appreciate men striving to advance themselves, but not at the expense of keeping others down. I must apologise for trespassing so far on your valuable space.—Yours, &c.,
Mercer-street. J. F. K.

OPINIONS ON THE CARPENTERS' STRIKE.

In commenting on the present strike of the carpenters, our contemporary, the *Express* says:—

"It is much to be regretted that an amicable arrangement has not been entered into between the employers and the carpenters who are now on strike. A laudable effort to effect a compromise was made by Mr. Kerr, a gentleman whose practical experience, liberality, and prudence commended him to the confidence of both parties as a mediator. His good offices failed because the workmen made what the employers conceived to be an unreasonable demand, and made it under conditions which placed the masters, from the outset, at a disadvantage. They required an advance of 8s. a week upon their present wages, which are fixed at 30s. The employers offered an increase of 2s., or to refer the whole question to arbitration, as they wanted to return to the old system of working full time on Saturdays. The men were willing to accept the advance of 2s., and to refer the remainder of their claim to arbitration. This demand was rejected, and so the strike still continues. We think the men have been very ill-advised in not agreeing to the terms which were offered, even though they fell short of what were demanded. The loss to themselves and to the trade of the city, if the dispute be prolonged, must be very serious. The effects of a strike are not confined to the particular department in which it takes place, but are felt throughout the whole industrial system. The interruption of work in one branch involves its cessation in others which are dependent upon it, and thus the families of the working men become the victims of this war between

capital and labour. The masters are obliged in self-defence to recruit their mechanical staff from other places, and, in the end, the workmen may find that, in pursuit of a small temporary gain, they have sacrificed solid and permanent advantages—that they have overstocked the local labour market, and relinquished their places in the workshop to others, whom they may never be able to displace, even if they accepted an absolute reduction of wages. The Bill now before Parliament will not put an end to strikes, but rather, perhaps, facilitate them. It legalizes trade combinations and leaves the workmen free, as they ought to be, to make what terms they think fit. There ought, however, to be some provision for extending the period of notice where a strike or lock-out is contemplated. A fortnight is too limited a time to enable the parties against whom the movement is directed to make arrangements to meet the sudden difficulty, and, in the case of employers who have works in progress under contract, the strike may be so timed as to occasion ruinous loss."

In a letter from a subscriber (a stonemason), Darwen, Lancashire, the following passages occur, which we willingly print:—"I am perfectly sure that their (the carpenters') dispute will be abortive in the end. The joiners of Darwen, two years ago, stupidly struck for a reduction in their hours of labour, and there were plenty of supplanters in the field. Although they have a strong society, they failed in gaining their demands. They, too, did not give sufficient notice to their employers, to enable them to make their arrangements to meet the increased rate of wages. The harmony previously subsisting between the parties has been broken up, as will also be the result in the case of the Dublin carpenters. . . . I rejoice in reading the well-penned articles which appear from time to time in your able and scientific journal, and I wish it every success. I trust I will fulfil my promise: for past three months I have been very busy. Trade is very good in all branches of building throughout England—men very scarce in this part."

NEW THEATRE IN SOUTH KING-STREET.

UNDER the head of "Building Intelligence," our valued contemporary the *Building News* has the following in its publication of Saturday last:—

"NEW GAIETY THEATRE, DUBLIN.—On Saturday last the foundation-stone of a new theatre, to be called the New Gaiety Theatre, was laid in Dublin by the Lord Mayor of that city, after which a banquet was held. Mr. Phipps, the well-known theatre designer, is the architect, and Mr. John Gunn (!) of Dublin, the builder. At a time when so many people in Ireland are talking about "home rule," it is a pity the people of Dublin were obliged or felt inclined to go to [London for an architect and to] Paris for a name for the new theatre, and particularly as one by the same name has recently been erected in London."

On this subject the *Irish Sportsman and Farmer* says:—

"After the English fashion of inaugurating every new enterprise with a "feed," Messrs. Gunn gave a grand *dejeuner* on the occasion of laying the first stone of their theatre, with the uncomfortable but imitative name of "The Gaiety." Lord Mayor, ex-Lord Mayor, and a very distinguished company were present, including our poet, Dr. Waller, who represented and answered for the Press. A great deal of Shakespeare was, of course, quoted in the speeches, and the whole affair would nearly have been a failure if some one had not mentioned that the business of the stage was to "Hold the mirror up to nature;" this, however, fortunately, was thought of, "to keep up the charter," as Albert Smith used to say, when he had been caught repeating a quotation to every partner he danced with during a ball. Everything went off most satisfactorily, and it is only to be hoped that performance will wait attentively on promise. Mr. Gunn said the sensible things of the evening, which promises well for the future, under his and his brother's management. He said that a theatre should not be managed by an actor. He said that Dublin was not the critical and judicial theatrical place that it formerly was, and that its flatterers in this way were doing what flatterers always do, preventing it from learning; but he hoped to have the pleasure of teaching

it. He said that being in a great measure a provincial town (dramatically speaking), and not a metropolis, it was impossible to provide for its wants as a capital, but he hoped it would be one, and he would do his best to make it so. He hopes, in fact, in time to give native talent of all sort! only mixed, not adulterated, with foreign. Bravo! Mr. Gunn, if you stick to this programme, not being charmed therefrom by any syrens, after the manner of managers in general, oh! Messrs. Gunn! you will succeed triumphantly, and the IRISH SPORTSMAN AND FARMER throws his shoe after you."

PROPER TREATMENT OF STAINED GLASS.

The following correspondence appeared in the columns of a contemporary; as the subject matter of it will interest many of our readers, we reprint it for their information:

SIR,—The wonderful revival of Gothic art of late years in these countries, now almost complete, is in one respect still imperfect, and that is as regards stained glass. In the fourteenth century the rage for stained glass worked the most remarkable change in architecture, leading to the enlargement of windows, simply for the reception of this strikingly beautiful decoration, so that, in the instance of the Sainte Chapelle in Paris, the walls of the church became literally walls of jewel-like glass. This feature of mediæval art is too often forgotten at the present day; and you may walk into many a new church of the most perfect Gothic and be entirely disappointed with the general effect—the garishness, and excessive lightness, from the want of the "storied windows, richly light." Worse than this, however, is the effect from putting up, at different times, and in the absence of any fixed design, memorial windows—some bad, others indifferent—made, some at Birmingham, others at Newcastle, and all of them incongruous with each other. In the best age of Gothic, as years passed on, the architects were careful to note and avoid the errors of their predecessors. Let this be borne in mind as regards Christ Church Cathedral. It would be too much to expect of even Mr. Roe's liberality that its windows should be filled by him with painted glass. The most we can hope for is cathedral glass, green or yellow, which would be a variety on St. Patrick's, studded with gemlike pieces of the more brilliant colours. But I venture to suggest that there should be a complete design, under the superintendence of Mr. Street, for filling all the windows with stained glass—the nearest approach that the best modern art in Europe can make to the finest of the mediæval times. Let that design be rigidly adhered to, as memorial window after memorial window may be erected, and then ultimately the splendour and congruity of the whole will make Christ Church as admirable as other buildings of the kind are objectionable. It was by having at the outset a complete design, never since departed from, that Cologne Cathedral, now in about the six hundredth year of its erection, bids fair to be the most perfect of Gothic structures, instead of being, as it otherwise would have been, a mass of incongruities. A LOVER OF GOTHIC ART.

SIR,—As the letter of your correspondent. "A Lover of Gothic Art," in to-day's paper, seems to raise the question of stained glass and its proper treatment in connexion with architecture, I beg leave to offer a few remarks on the subject. I fear your correspondent's enthusiasm has led him a little astray when he says that fourteenth-century windows were enlarged "simply for the reception" of stained glass. Traceried windows gradually resulted from the natural development of the style, though it may be that in the later and debased period of Gothic art, all repose of wall surface was sacrificed to the windows which were to be filled with painted glass, still in the purer and earlier work this was not so. In this stained glass was treated as subservient to the architecture, of which it was a legitimate decoration. The first glass painters designed in geometric and diaper forms, as in the five sister windows at York Minster, and afterwards when figures were introduced they were always treated conventionally. Colour was never sacrificed to delicacy of outline or to depth of shadow. The figure subjects were designed to fill the respective openings in proper subordination to the architecture, and generally on a small scale, as compared with the building in which they occur. As an illustration of the treatment which I advocate, I may refer to York Minster, which (with great respect for your correspondent's opinion) has far more claim to be considered "the most perfect of Gothic structures" than Cologne or any other German Gothic building. I happen to have been in York Minster, within the last week, reviving recollections

of my early student days, which were passed almost beneath its shadow, and the more I studied the building the more I was convinced that a great deal of its almost unrivalled beauty in the interior is owing to the subordination of its glass. The great east window—perhaps the largest in the world—is filled with fine glass in figure subjects, but the effect at the ordinary point of view is merely that of subdued and harmoniously-coloured light. The glass painter here felt that the architecture was not to be considered merely as a frame for his work. How different is the effect in a modern building. The designers or originators of our memorial windows seem to think that the first thing to be looked at, on entering a church, is their particular window. All architectural propriety is often sacrificed; figure subjects are made to run across mullions, so as to lead one to suppose that if the authors had their will they would have cut out the stonework, to make more room for the glass. Turn where you will, your eye is forced back again by some window which seems to say—"You must look at me; am I not very like a Leonardo da Vinci?"

It is greatly to be regretted that our good stained-glass makers will not give their minds to the designing of geometric windows without figures, they would be so much cheaper, and, in many cases, would be an equally effective mode of colouring light. I cannot agree with your correspondent that the effect obtained by the stained-glass and colour in the Sainte Chapelle, at Paris, is to be desired. To me there is in it a want of repose. The eye seeks in vain for a gray or neutral surface on which to rest; the predominance of positive colours is overpowering. Your correspondent seems to cast severe reflections on the work done by the Birmingham and Newcastle glass-makers. I hope this is unintentional, as some of our best glass-painters are there; such men as would, if left to their own taste, design far better glass than we architects, whose experience in dealing with a coloured material, such as glass, is necessarily more limited than theirs. I fully concur with your correspondent in the view that stained-glass windows should be designed under the direction of an architect; but I doubt much if his plan of fixing now the design of all the windows at Christ Church Cathedral would be desirable. Mr. Street is one of the most distinguished Gothic architects of the day; and it is, perhaps, some satisfaction to us mere Irish architects that, as we were again to be passed over, it was for a no less distinguished man; but even Mr. Street would scarcely undertake the somewhat invidious task of making designs "to be rigidly adhered to" for all the memorial windows which now or hereafter may be erected in our metropolitan cathedral.

RAWSON CARROLL, F.R.I.A.I., Architect.

MISCELLANEOUS.

THE NEW POSTAL ARRANGEMENTS.—An authorised statement has been issued, announcing that the new postal arrangements referred to in Mr. Monsell's speech of March 14, will come into operation on the 1st of August. The new scale will be:—For parcels and letters of all sorts, closed or open, making no distinction between them, as follows—Not exceeding 10z., 1d.; above 10z., but not exceeding 20z., 1½d.; above 20z., but not exceeding 40z., 2d.; above 40z., but not exceeding 60z., 2½d.; above 60z., but not exceeding 80z., 3d.; above 80z., but not exceeding 100z., 3½d.; above 100z., but not exceeding 120z., 4d. Twelve ounces to be the limit of weight for letters and parcels.

USEFUL FORMS.—Mr. Thomas Edmondson, 11 Dame-street, sends us samples of various forms, including certificates for works executed, with receipt on backs; orders for additional works; improved self-measuring books, &c. It is almost needless to say that they are got up in the usual good style for which T. E. is famed. Architects and contractors should at once supply themselves with these forms, which are moderate in price.

ART TREASURES OF THE LOUVRE.—It is now certain that the art treasures of the Louvre and Luxembourg are safe. Immediately after the catastrophe of Sedan, the most valuable pictures of the Louvre were packed and sent off to Brest. The others, with the marbles, packed away in the vaults at each palace, manuscripts, &c., being put inside sarcophagi and cemented in. The lower windows of the Louvre were built up, and every possible precaution taken against fire. By the courage and ready wit of the officers and attendants, who faithfully remained in charge, the delivery of the collections to the Communistic officers was delayed until M'Mahon's entry released them from danger.

Mr. Bayle Bernard is engaged upon a memoir of the late Samuel Lover, R.H.A., embracing a critical estimate of his talent, as poet, novelist, dramatist, painter and composer; and a comparison of his powers, especially as a novelist, viewed in relation to other writers of the Irish school.

FALCONER'S RAILWAY GUIDES.—These travelling guides have, we are glad to find, been purged of many errors, and may now be looked upon as reliable by the tourist. They are well printed, and got up at moderate prices.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctor's bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & Co., Homeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

THE BUYER'S DESIDERATUM.—"The buyer's desideratum is to find an establishment where will be presented to him ample choice of artistic designs, without having forced upon his attention a host of mere ingenious ones, and destitute of any other merit, with a tariff of prices adapted to the means of the economic or those to whom price is no object. Such an establishment is that of Mr. J. W. Benson, situated at Ludgate-hill and Old Bond-street, London, whose recent enlargement of his premises has made his show rooms more conspicuous than any other in the neighbourhood of St. Paul's. His windows such a variety of gold and silver watches as to leave nothing to be desired but the money to buy them with. The high standing of Mr. Benson as a London manufacturer must secure him a large amount of public patronage."—*Standard*. For prices of Watches, Clocks, Jewellery, Chains, &c., see the illustrated pamphlets, which are sent Post free for Two Stamps.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

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DESIGN FOR WINCHESTER TOWN HALL.
MR. J. J. O'CALLAGHAN, ARCHITECT.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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The Irish Builder.

VOL. XIII.—No. 279.

Architecture and Irish Architects.



WE are glad to see, as appears by an announcement in our advertising columns, that we are likely to have, at no very distant date, a volume that the architectural and building profession generally

in this country must hail with some degree of satisfaction. Some fitting record of the lives and works of Irish architects of eminence is a work much desiderated, and we hope that its author, if he live to complete his task (a nowise easy one), will meet with the assistance and success that his bold and courageous venture deserves. Members of the Institute of Architects, Irish or British, the Civil Engineers, and the different learned societies, archaeological and antiquarian, can, no doubt, render assistance in the shape of "waifs and strays," or point out to the author overlooked or forgotten channels, where information on his subject may be found and sifted. We will be glad ourselves to assist in every way that lies in our direction, and should any communication reach us editorially tending to advance the interest of the intended volume, we will only be too glad to publish such, if desirable.

From the year of 1769-70 to the present time, a period of over a century, many clever and distinguished architects, native and foreign, have practised in Ireland. Very few, even of the architectural craft, in this country, are aware of the number. When the merchants of Dublin advertised for designs for the Royal Exchange, eighteen or twenty out of the sixty-one competitors were belonging to this country, and the majority of those eighteen were of Dublin. The remainder, subtracting about twenty, were Englishmen, mostly practising in London. Two or three of the Englishmen became afterwards celebrated Irish architects by practice, and are known to the whole profession as James Gandon and Thomas Cooley. Dublin is still proud of their fame. Of the Irish ones at the period alluded to, but two or three are barely known now, the records of whom are but slight indeed. The rest have dropped out of the memory of the "oldest inhabitant," and even of the public mind, so completely that men will feel surprised when they hear their names mentioned in connexion with the history of Irish architecture. Coming down to the close of the last century, a few prominent Irish names peep forth, and during the present century we have a few prominent and leading architects of whom the profession and the country ought to, and, no doubt, does, feel proud.

The late Thomas J. Mulvany, R.H.A., wrote a life of Gandon, published a quarter of a century ago, creditable as far as it went, but of Richard Castles, George Semple, Thomas Cooley, Thomas Ivory, the Morrisons, Francis Johnston, Henry Baker, George Ensor, and sundry others, older or more recent, very little indeed is known, and

the little that has come down to us is very meagre indeed.

Surely, then, none can view with light concern a task that aims at placing in our possession all the data that can be obtained by an industry and a love for the subject in such a practical and deeply interesting field as that traversed by Irish architects of note in the practice of their profession and the elevation of their art.

THE STATE OF DRAMATIC ART IN IRELAND.

THE condition of the drama in Great Britain at the present moment is most disheartening to contemplate, and this statement also applies equally to its state in Ireland. The Irish stage *adscripti glebæ* was once a something to feel proud of, for on its boards Shakespeare's characters, and some more of the elder dramatic masters, found a truthful representation and a faithful embodiment. Indigenous talent, intellectual and acting, of the dramatic kind, was nowise sparse in Ireland during the eighteenth and the early portion of the present century. The drama was fostered by the gentry, the nobility, and the citizens generally, of Dublin, and the capital stood unequalled, even by London, in the manner in which the stage was supported, and in the interpretation given to the best creations of dramatic art by native actors and authors. The text of Shakespeare was improved in Dublin, and rendered amenable to the mind and decencies of the age, without injuring its vitality or purpose. The actor entered into the spirit of the author, for the actor was in many cases an author himself, and, as it happened, practised a self-denial, and otherwise an entire forgetfulness of his own creations, while he threw himself body and soul into the conceptions of his great models. Twenty-five or thirty years ago, it was a pleasure to come in contact with a few of the old *habitués* and playgoers, then alive, who frequented the Dublin boards at the end of the last and the beginning of the present century. The memory of the actors, and the acting they once witnessed, was engraven on their minds in a manner that could never be effaced save by death. What they had once seen could never be forgotten. With what pleasurable emotion and exquisite feeling did they not describe the glory of their early days! These were the days of the Kembles, the Keans, the O'Neils, the Siddons, the Sheridans, the Youngs, the Dalys, the Owensons, and others, perfect masters in the world of tragedy and comedy. This city, for a century and a-half, had the name of being the cradle of musical and dramatic ability; but the question remains, if we are not already following the hearse? Our theatres are becoming a disgrace, our actors degenerating into mere mimics and pantaloons, and the trade of lessees, managers, actors, and audiences growing morbid, maudlin, and debased. Honest theatrical criticism we have none in this city. The greed for advertisements chokes fair dealing, and puffs are the *quid pro quo* for the liberal consideration of the lessee or stage manager. Is there one journal in Dublin with a spirit of manliness who will back up our statement "with the truth, the whole truth, and nothing but the truth" in this matter?

Our Theatre Royal vegetates on the refuse, or is glad to accept the used-up delicacies of the London season, and it and our other theatres have for many years now been sup-

porting their chequered existence by the supernatural, the "sensational," and the idiotic comic.

London at present fares little better. Burlesque and opera-bouffe, brimstone and blood, human monstrosities, and outrageous indecencies are nearly the sum total of general theatrical affairs in the greatest city in the world. Dublin, it would seem, must fain copy these interesting exhibitions.

A new theatre is now building in Dublin, which, we trust, in point of architecture and accommodation, will be an improvement to our street architecture! We say we trust so, because we are unable yet to speak with certainty until we see it finished. Why could not the new design and building be made the forerunner of a new reign of dramatic life in Ireland? It will not be what it ought to be, "a national theatre." It begins with a borrowed name, and it is fated, we fear, to fall into the same rut as the rest, and open by presenting the citizens of Dublin with the cast-off rags of Great Britain and the Continent.

Dublin has enough of the comic nature and aspect in her own composition without resorting to the threadbare habiliments of other British and foreign actors and properties. We want a truly native theatre, but not exclusive of outer good to be found in other lands. Shakespeare must be recognised everywhere; so must Johnson, Massinger, Beaumont, and Fletcher, though now less heard of than formerly. Born on Irish soil, however, we have had our Steeles, Farquhars, Keefes, Kellys, Murphys, Maturins, Sheridans, Goldsmiths, Sheils, Banims, Knowles, Brookes, Balfes, Griffins, and others, older and more recent, who have written some of the finest pieces ever acted, and which yet hold the stage and win unflinching public applause. Byron, Coleridge, Johanna Baillie, and other English writers, gave us tragedies also; but in successful and perfect comedy Ireland has won and holds the palm from the days of Farquhar to Sheridan, and even to our own day. Attached to Ireland, either in tragedy or comedy, there is no lack of versatility, and yet any one viewing at present the Dublin stage would think that this country was a very *ultima thule* in every respect.

An effort is being made in London to lift up the stage to its former grandeur, and to place the legitimate drama on a basis that cannot be disturbed by the prevailing and vitiated tastes of the present generation of playgoers. The object and design is, to establish a national English theatre. One of the foremost moving in this direction is Mr. George Godwin, F.R.S., and Mr. Planché, the *Somerset Herald*, Mr. Tom Taylor, the dramatic critic of the *Times*, and other less known ordinary and dramatic critics and authors, are moving in the same direction. The task is a difficult one. To establish a theatre where the ennobling plays of our great dramatists may be presented; to keep open the doors of such a theatre, and furnish the public with faithful representations, by actors of educational ability and well-trying experience; to root out the tares, to purge the stage, and make it an exemplar of all that is noble, instructive in the art of pleasing and imparting knowledge—to do this, is to accomplish a magnificent task. Shakespeare "spells ruin" now because there is but little honesty and fair dealing in the literary or public market. The brewer or the distiller M.P. will not vote on the liquor question against his own interest. He will not vote for the closing of

the gin-shop on Sundays, because he holds many mortgages on houses in which he has a life or trade interest. The Fourth Estate, too, in this "sensational" age, have an interest and, if common report speaks the truth, have shares in many flourishing concerns where the sensational drama, instead of the Shakespearean one, is acted and encouraged. Public opinion becomes private opinion when it answers personal interest, and the earwigged throng who cannot peep behind the curtain, pay their money freely for a pit or dress circle view, go home, read the critique in the morning, "done to order" by the friend or the actor himself, never dreams that he has been sold, and dies with his illusions (of the honesty of the press and the proprietors of the stage) undispelled. Is it not time that the truth should be known, and the cancer cut out?

Mr. Godwin suggests the way that he considers a national theatre might be established and supported, which would not "be wholly controlled by the predominant taste of the public." A plan similar to what has given us Great Exhibitions. "A list of guarantors; a hundred gentlemen, say, giving their names for £100 a-piece, a small committee of the guarantors to supervise, and a proper and responsible manager. An existing theatre to be taken; a large pit, and moderate prices; no long runs; no short hirings of actors; a dramatic school attached; the advancement of the drama; the healthful amusement and delight of the public to be considered the paramount object of the undertaking." Thus Mr. Godwin maps out his scheme, which we consider feasible in London, and certainly, if once carried out there, would materially affect this city also for the better. Yet, even independent of the London institution, Dublin could begin the work of restoration and improvement on a small scale herself. Irish songs and music are already, when well rendered, a passport to every human heart at home and abroad, and we cannot think that a Dublin audience has degenerated so low that the comedies of Sheridan or Goldsmith would be rejected for the inanities and indecencies and open obscenities of the modern burlesques and farces, so revoltingly obtruded upon the stage of many British theatres. Whatever good and ennobling plays might be put upon the London stage, no doubt Dublin would gladly copy; and if there was once a proper national theatre established in this city, a very short time would elapse until native actors and authors would be found in abundance. The establishment of a national theatre in Dublin, and the revival of the legitimate drama, would have a wonderful effect in giving an impetus to native industries. Trade would be benefited, art would be benefited, literature would be benefited, and talent sought out, encouraged and well requited. Actor and author would find a market at home, and we believe, and have every reason in believing, that the list of foreign pleasure-seekers and titled absentees would grow considerably less.

What is required in Dublin as accessories is a well-built, well-ventilated theatre, both ornamental as well as adapted to its wants; managers with a proper public spirit, and above all mean shifts and expedients; actors well educated and respectable, who will be treated by lessees and stage managers with consideration and justice—treated as gentlemen, and not mere hirelings; moderate prices for *entrées*, no fees, suspension entirely of

all "free lists," press and all included, except on special occasions; fair, upright and manly criticism by critics that know what they write about, and not inane and epileptic penny-a-lining. This is what is required. Newspaper men should have no direct interest in the management, neither should the manager have a direct influence in the character of actor and author to the injury of others and the benefit of himself. Some of these things, however, are difficult to avoid, and, save under one or two rare conditions, perhaps impossible to prevent.

In this city, that hailed and honoured Handel, welcomed Garrick, encouraged Macklin, Owenson and Daly; that forgot the frailties of Margaret Woffington in the brilliancy of her charity and acting; that appreciated the Siddons, the Kembles, and the Keans; that worshipped and wept for poor Tyrone Power, and held out the warm hand of greeting to many of our great latter-day English and foreign actors; and that in the exuberance of her hospitality impoverished herself; cannot this city—this Dublin, the second city in the empire—rise once more to the dignity of a "National Theatre" racy of the soil? She can, if she wills it. She must, or she will deserve to be branded as "the Slatern of Cities."

DUBLINIENSIS.

THE POSTAL TELEGRAPHS.

THE latest report on the postal telegraphs, which takes the form of a couple of letters to the Chancellor of the Exchequer, shows in a very powerful light how great is already the advantage to the public from the transfer of the telegraphs of the kingdom to such efficient hands. The number of telegraph stations in connexion with the post-office at the time of the transfer was in all 2,907. By the end of the first five months of the present year the number had increased to 4,211, and was increasing at the rate of some 70 to 80 stations each month. Meanwhile, existing circuits have been shortened, and communication made more direct than heretofore, while seven wires have been thrown over to Ireland, thus giving one great step towards a communication which was previously much fettered. As might have been expected, the business receipts have more than kept pace with the improvements, on the easily discernible principle, that the more efficient and rapid the service, the more it will be used. The extent to which reconstructions and improvements have been effected may be gathered from such items as £49,813 for telegraph poles, £107,795 for galvanised iron wire, £46,825 for gutta-percha covered wire, and £46,752 for instruments. On the whole, Mr. Scudamore believes that, reckoning the capital on which interest has to be paid at £7,500,000, the gross earnings will realize 10 per cent. of that sum, from which little more than half will have to be deducted for working expenses. For us, however, who are not compelled to speak with that timidity which is necessary in official conjectures, it is safe to assume that the gross receipts, which already stand at the rate of something over £700,000, will realize considerably more than the estimated sum; while the working expenses, following the well-known law of commerce, will gradually be lowered considerably below their present figure of 58 per cent. of the gross revenue. It will then be a question whether the telegraphs shall continue to be worked at an enormous profit for the benefit of the revenue, or whether, after setting aside a fair amount towards repayment of purchase money and extinction of capital account, together with something between 3 and 4 per cent. for interest on the balances not repaid, there should be some movement made towards giving the public the benefit of the cheap working. In making calculations of

this kind, it is always assumed that reduction of tariff means loss of revenue, but this assumption is almost always against the facts. In the case of telegraphs, if Mr. Scudamore can put himself into a position to deal with the enormously increased business that would result from such a step, we believe that he might, without loss of revenue, reduce by one-half the price of messages within the next two or three years, and it is not improbable that the completion of another year may witness a tentative step in this direction.

THE KILDARE COUNTY SURVEYOR, AND HIS SALARY.

WE take the following from the *Leinster Express's* report of the proceedings of the Grand Jury at Summer Assizes:—

In presentment No. 6, which grants to Mr. Brett, county surveyor, a sum of £25 half yearly for payment of clerk and rent of office, in addition to £500 a year salary, the question was asked by one of the grand jury if he had not an office in the court-house, in reply to which he said he had; but the above sum presented for was always allowed to his predecessors. Mr. Brett further stated that during the past year it cost him £250 for assistants alone, not speaking of his own travelling expenses, which reduced his salary to about £180 a year, which was much under any other person holding a similar situation in any other county—in fact, he was the worst paid officer of any he knew.

Mr. Brett in reply to questions put to him by several grand jurors, said he had only two assistants at present; the third had resigned because he asked him to reside in the district in which he was required to do duty.

Mr. Vesey said that Mr. Brazill had considerably more salary than Mr. Brett, inasmuch as he was paid £350 in addition to providing him with three assistants, who were paid £70 a year each.

Mr. Trench.—We gave our present surveyor £550, which was the extreme of what we could allow under the act, as it was the wish of the grand jury to give a bulk sum, and allow the surveyor to employ his own assistants.

Mr. Rynd said he thought Mr. Brett had an expensive class of assistants, and that by employing local men the work could be done for much less.

Mr. Brett, in reply to Mr. Vesey, said that he had at present two assistants at £78 a year each, and that he could not expect to get competent men for less.

Mr. Rynd was of opinion that Mr. Brett could obtain the services of local men who would not be required to devote all their time to his service, considerably less.

Mr. Vesey held an opposite opinion. He (Mr. Vesey) paid 12s. a week to labouring men, and it was a compliment to get them to work for that; and could it be then assumed that men possessing the ability required to discharge the duties of a county surveyor's assistant, would give their services for a less salary than £70 a year?

Mr. Brett observed that an assistant should be a skilled man to discharge the duties required of him.

Mr. Vesey—I am of opinion that our present county surveyor should get as much salary as his predecessor, viz., £350 per annum, as a less sum is insufficient for a competent officer who has the arduous duties to perform which devolves upon him.

Mr. Mansfield.—When Mr. Brett was appointed it was with the distinct understanding that he would get as much salary as Mr. Brazill.

Mr. Vesey.—It cost the county £660 when Mr. Brazill was in office, and his successor has only £500; that makes a great difference.

Mr. Sweetman proposed to add £50 to the county surveyor's expense of clerk and rent of office.

Mr. Yeats said the act limits the amount to £50 for the purpose suggested by Mr. Sweetman.

Mr. Brett.—It cost me £250 for assistants during the last year.

Mr. Vesey.—Except we go back to the old system of appointing our own assistants, I don't see what we can do in the matter.

It was ultimately resolved:—"That the salary of the county surveyor be in future £400 per annum; and that the county surveyor be allowed three assistants, who are to live in their districts, at £70 per annum; and the county surveyor shall have the power of appointing the assistant surveyors."

[We should be glad to learn what has become of the County Surveyors Assistants' Association, which was formed a couple of years ago, and to the cause of which we afforded advocacy in our columns.—Ed. I. B.]

ROAD LOCOMOTIVES.

CONSIDERING the many improvements which have been effected of late in the construction of locomotives for use on ordinary roads, it is much to be desired that greater effort should be made to bring them into more common use. In many places where the construction of a railroad would not pay, the advantages of railroad communication might be in a great measure obtained by the use of road steamers, and these would be at all times, and in all places, most valuable auxiliaries and feeders to existing lines. One great reason which has hitherto operated against their more extensive adoption is to be found in the stringent and ridiculous provisions of the acts of parliament regulating their use. Two acts have been passed on the subject—one in 1861 and the other in 1865. The first of these acts imposes tolls, restricts the weight and size of locomotives and their wheels, restricts their use over certain bridges, compels them to consume their own smoke, requires a certain number of persons to be in charge of the locomotive, and the use of lights. The second imposes such rules for the working of locomotives as are almost prohibitory to their use. For instance, it enacts that one person, while any locomotive is in motion, shall precede it on foot by not less than sixty yards, and shall carry a red flag constantly displayed, and shall assist horses and carriages drawn by horses in passing; and again, that every locomotive shall be instantly stopped on the person preceding the same, or any other person with a horse, or carriage drawn by a horse, putting up his hand as a signal to require such locomotive to be stopped. It also enacts that it shall not be lawful to drive along any turnpike road or public highway at a greater speed than four miles an hour, or through any city, town, or village, at a greater speed than two miles an hour. The steam is not to be sufficiently high to blow off at the safety valves, nor is the whistle to be sounded for any purpose whatever. These restrictions have recently been made the subject of a memorial by the grand jury and magistrates of the county of Kerry, and the provost, magistrates, and council of Leith, and a memorandum well worthy of attention has just been issued by Captain Tyler, of the Board of Trade, relating to a bill of Lord Dunmore's, now before parliament, intended to modify the existing restrictions. This bill dispenses with the man and flag preceding the engine, and increases the maximum speed to eight miles an hour on the high road, and four miles an hour in the streets of a town or village. Captain Tyler in his memorandum approves of these amendments. The red flag he shows altogether to be a mistake, and more calculated to frighten horses than to be a protection, while the man bearing it necessarily limits the speed of the engine. He points out that there is no reason for restricting the speed on portions of a nearly level road, where there is an unobstructed view for a considerable distance, and along which it can be seen that there are no horses to be frightened, while in turning corners the machine is bound from its very construction to proceed at a slower rate. Efficient brakes, however, should be provided, and driver, and fireman, and a guard to look after the waggons attached, should attend each train. With such regulations, Captain Tyler justly says that when the engines come into more general use a better principle in dealing with such a matter would be rather to place upon the proprietors and drivers of engines the obligation to use the utmost precautions suitable to each particular case as to speed or otherwise, so as not to subject persons using the road with horses to annoyance and risk, than to prescribe a theoretical mode of doing so, which they cannot under all circumstances advantageously carry out in practice. In the latter case they would, upon an accident occurring, be irresponsible, provided only they could prove that they had complied with the letter of the law. In the former case it would be to their interest, as well as their duty, to take such precaution in working as would not only prevent undue

annoyance to the public, but would also preserve them from the disadvantage of having complaints made against them. In conclusion, Captain Tyler recommends that no road locomotive should be permitted to ply or run along any public road except under licence from the Home Office or the Board of Trade, and the liability to forfeit such licence, in addition to legal and pecuniary responsibility for any accident that might occur, would, doubtless, be sufficient, by way of guarantee, to ensure the conduct and careful attention to the convenience and safety of the public.—*Railway News.*

ST. JOHN'S BRIDGE, KILKENNY.

THE engineers appointed by the Lord Lieutenant to report upon the best materials in which to rebuild the above bridge, have recommended the construction of one consisting of three cast iron semi-elliptical arches resting on stone piers and abutments. We entirely agree with them in their recommendation. It would be very desirable to have some improvement made in the southern approach to the bridge—it is very inconvenient for traffic.

With a view (say Messrs. Roberts and Burtchell) to the preparation of the necessary plans and specification for the proposed work, we have had careful borings taken to ascertain the nature of the foundations, and the necessary surveys and sections made of the site we selected for the bridge, and have carefully considered the design with the most anxious desire to adopt a stone bridge, for the construction of which the material available in the locality affords great facility, and which in other respects seems most suitable.

We find that the foundations are not of a formation favourable for the erecting of a bridge throwing great lateral pressure on the extreme points of support, and the height between the line of ordinary floods in the river, and the level which it is desirable to maintain for the roadway surface is only 7 ft. 2½ in., while the breadth of the channel to be spanned is 145 ft.

The approaches to the bridge render it necessary to cross the river at the angle skew with the line of the channel, and the importance of maintaining an efficient waterway for the discharge of floods must not be overlooked, for it is not improbable that the gradual improvement of the drainage of the lands within the basin of the river, 600 square miles in extent, will tend to increase their height.

Having carefully considered these circumstances, we have, with much reluctance, abandoned the project of a stone bridge, and recommend the construction of a bridge consisting of three cast iron semi-elliptical arches resting on stone piers and abutments. We have prepared the necessary plans, sections, working drawings, and specification, for the erection of the work. The cost of which we estimate at £5,000.

The following statement was made to the Grand Jury of the county of the city of Kilkenny by the County Surveyor, Mr. Burtchell, in which he explains the difference between a stone bridge and an iron one:—

Weight of stone arches and spandrels, 1,483 tons; weight of iron and concrete under road and footpath, 341 tons. Actual difference in weight in favour of iron, say 1,000 tons; and thrust or lateral pressure on abutments, proportionably less. Depth required in stone bridge, at crown, not less than 3 ft. 6 in.; depth for iron, 2 ft. This enables more headway to be given for water and also further lightens the lateral thrust on abutments. The iron arches can be elliptic at haunches, which also increases water-way. Iron arches can be turned more expeditiously than stone, and may be put up at any season, but stone arches could only be turned in summer without great hazard from floods. The centres of stone arches are much more cumbersome than for iron, and more likely to interfere with discharge of flood. A stone bridge can be well built, made quite as, if not more, pleasing in architectural effect, but within the same limiting lines between roadway and water; iron will give more efficacy as to discharging capacity for water with comparatively light pressure on foundations. Am I asked which is the best? I say, in this case, iron. Then why not have the best? Stone arches would cost a good deal less, including the formation of roadway over them, and by not adopting them a good deal of employment and extra expenditure will be lost to the neighbourhood—both unimportant considerations when the work is a joint one of great interest to the entire county and city of Kilkenny. My original

estimate for the bridge was £3,997, economy being strictly enforced upon me, and expecting to make available most of the material, including parapets of the present bridge. When settled that the traffic should be kept open this added to my estimate £428, making £3,525. I added further to this £500 when the county and city were about to present, considering that £4,000 would be sufficient to meet any contingencies for either stone or iron, whichever might turn out to be most advisable. I must remark that heretofore the whole onus and expense of testing the foundations, also the after risk, was necessarily thrown upon any contractor or intending bidder. Now the information to such is more definite. Having gone into detailed calculations our estimate exceeded the presumed amount and came to £4,764, but I still expect the work will be contracted for much under this sum, and may even be done for £4,000. Many favourable circumstances may present themselves in the way of executing the work. We have looked towards the future as to the probability of an increase in floods by arterial drainage; I would say also look into the past. We have on record that a bridge stood on the site of the now proposed bridge, and in the year 1763 a dreadful flood filled the river and carried it away, also Green's-bridge. A flood in 1765 delayed the work of the building of the present John's-bridge, which appears to have been completed in 1767. Several frightful catastrophes from floods causing loss of life and carrying away all the bridges save one, on the Nore, appear to have occurred about this time—the last recorded great inundation being in 1797. Although the violent character of the river appears to have changed since former years, without any apparent cause, and the highest observed floods latterly have been comparatively inconsiderable, yet these occurrences should be borne in mind. We have looked into the past, and the future—the present you know, gentlemen. I beseech you to build the very best bridge that can be designed. That you have now before you.

CEMENT FLOORS.

THE subject of permanent floors and the extermination of vermin has engaged my attention for thirty-five years, writes a correspondent of the *Cultivator*, and during that period I have tried many plans and materials. Some contend that if a wall has a footing six inches wide on each side, rats will not pass under the wall. This I have tried, but without success; my farm out-buildings and mill have been seriously infested with rats, and loss very great. I finally tried gas tar, freely using it in all holes or wherever I discovered the vermin. It acted wonderfully, and soon I was relieved of the pests. In putting in foundations of any depth I have the earth thoroughly rammed around the wall, as it is put up, to within one foot of the surface, and fill to the surface with coarse gravel united with gas tar. If a floor is to be laid, on ground floor I put on a covering of gravel and tar two or three inches thick, and lay a floor of water lime cement and gravel, using rough material at bottom and finer gravel and sharp sand on top. This makes a permanent and rat proof floor, and will stand any ordinary pressure, if put down solid, for which a stone roller, 300 to 500 lbs., should be used to compress the material well together.

My mode is as follows:—I prepare a box 5 ft. long, 3 ft. wide, two sides, and one end 12 in. wide, and one end 6 in. wide, pile of gravel on one side, barrels of tar on the other side, and a large pot to keep tar hot. I place sufficient gravel in box and add tar hot, sufficient to eat all the gravel by mixing; then place it on the floor and roll until two inches thickness is evenly laid over the floor. Then it should stand a day or two; but if pressed to complete the work, commence by putting two shovelfuls of coarse gravel to one of pure cement, until you put as much in box of this proportion as you can mix cement. Then thoroughly mix gravel and cement before adding one drop of water; then add water, and mix to usual consistency of mortar—a little stiff is better. Then place the batch on floor, and continue with same mixture, which is thick enough, until one-half inch of surface. You will then find the stone has disappeared, and cement soft on top. Then take one shovelful of cement and one of clean sharp sand; mix, and coat the floor over. If it continues soft, add dry cement

sifted over the top, and work in with a plasterer's trowel, which will render it hard, smooth, and as firm as freestone, and good for a century.

Any good farm hand can put it down if gravel is convenient, and if cement is worth 1 dol. 50 cents to 2 dols. per barrel, a floor can be laid at half the cost of wood, and worth infinitely more. Of the same mixture, one-half and two-thirds, I make all my drain pipe from kitchen, rain spouts, bath-room and water closets, from one-half to four inches in diameter, and by a process of continuous length and size of pipe. It is common now to find our farmers provided with barrels of gas tar, and use it freely in warring against rats. In my experience there is nothing like it for rats.

DOOR IN SOUTH TRANSEPT, CHRIST CHURCH CATHEDRAL.

We publish with this number a lithograph of the door at present leading into the South transept of this ancient structure. Mr. Street proposes, as part of his work of "restoration," to remove this door to the east side of the great tower. We may mention that our sketch is taken from a photograph—one of a series by Messrs. Millard and Robinson, Lower Sackville-street.

THE ROYAL AGRICULTURAL SOCIETY'S SHOW.

On this day the Royal Agricultural Society of Ireland open their show-yard at Ball's Bridge, for the annual exhibition of cattle, sheep, swine, poultry, implements, &c., &c., and the Grand National Show of horses. From what we have seen already we can say that it is on a far more extensive scale than any heretofore held. The whole area of about twenty-eight acres is laid out in the most judicious manner. It is enclosed by a hoarding about ten feet high. Exhibitors of implements will find ample space for display, and we are glad to find that many novelties will attract the attention of visitors.

For the purpose of viewing the jumping of the horses, two stands, capable of seating about 3,000 persons, have been erected. These stands are each about 400 feet long, with eight tiers of benches. The seats on the grand stand are numbered, and become, throughout the four days of the show, the property of the holders of the corresponding tickets. In the centre of the grand stand a portion is railed off for the Royal visitors. The steps of this are covered with Kidderminster carpet, and provided with richly upholstered seats, and a throne chair is placed above for the Prince of Wales. A careful examination of these structures proved to us that they were put up in the most permanent and substantial manner, an opinion fully borne out by Mr. James H. Owen, Architect to the Board of Works. We were led to ask ourselves the question, Could not the Royal Agricultural Society, after incurring so much expense, make an effort to purchase and retain the ground and buildings in their entirety? The Earl of Pembroke, whose majority has just occurred, would, we hesitate not to say, if applied to through his agent, John E. Vernon, Esq., J.P., liberally meet the wishes of the Committee of the Society. We must here take the opportunity of bearing testimony to the skilful management of the Pembroke Estate, and more particularly of what is known as the "Pembroke Township," for the past seventeen years, during which Mr. Vernon, the agent, has had charge of it.

Where cabbage-gardens and flooded fields existed, now stand handsome residences. During our visits to the show-ground the thought struck us that on its site, if not more profitably utilized, a "people's park" could be formed, and what an addition would not this be to an already prosperous and improving township!

But to return to the Show. The entire shedding erected extends to about 12,000 feet. That for implements (20 ft. wide) is 3,833 ft. long. Horse boxes (24 ft. x 12 ft.) 1,974 ft. Shedding for cattle, sheep, pigs, &c., 2,640 ft. Poultry, 300 ft.; 200 ft. for dairy produce, &c. We present our readers with a plan of the show-ground, which will be sufficiently explanatory of the arrangements. Mr. John Unite, of Paddington, London, has very effectively covered over all the shedding with white canvass duck, same as he has supplied for Royal Agricultural Society of England Shows for the last five years, and has now a contract for the next five years. Mr. Unite is, we perceive, also an exhibitor at Stand 39, to which we would recommend a visit. A copious supply of water is laid through the grounds from the Vartny main on the high road adjoining, by the eminent firm of Ross and Murray, Middle Abbey-street.

The refreshment departments (first, second, and third class saloons) are under the management of the Messrs. Murphy, Clare-street, the well-known caterers for public assemblies. The scale of charges in each class has been fixed by the committee.

Mr. Joseph Maguire, architect and C.E., was entrusted by the Committee of the Society with the arrangement of the ground, planning of stand-houses and shedding, &c. He has, we are glad to say, satisfactorily brought to a close the very arduous task committed to him. He was unremitting in attendance on the ground for several weeks, and, as may be expected, by the assistance thus rendered, he greatly facilitated the work undertaken by the contractors (Messrs. Wardrop and Son), the three members of whose firm are worthy of commendation for the manner in which they have carried out the work. The "strike" of the "Regular Carpenters" did not, we understand, interfere with the Messrs. Wardrop in fulfilling their contract in time. We understand that since the 1st of June upwards of four thousand pounds' worth of work has been executed by them for the purposes of this exhibition.

With some hope of "Royal" weather during the week, we hope to be able to congratulate the Society on the success of its undertaking. The chairman and the secretaries of the local committee merit our best thanks for their courtesy.

THE CRUCIFIXION OF THE CRITIC.

"In arguing, too, the parson own'd his skill,
For even though vanquished, he could argue still."
Goldsmith.

WILL no one for love or pity's sake whisper in the ear of the *Irish Sportsman* the necessity that exists for him purchasing a "*Reading Made Easy*." If our friend cannot afford to procure the Carpenter's Spelling Book, a pocket volume of Johnson, or a cheap edition of Lindley Murray might be picked up on one of our city book-stalls, which would, no doubt, answer our contemporary's purpose.

We are always sorry, indeed, to be obliged to notice incapacity in any public field, but where sheer incompetency is supplemented by an insolent perversity, and a positive and stupid persistence in the wrong, nothing

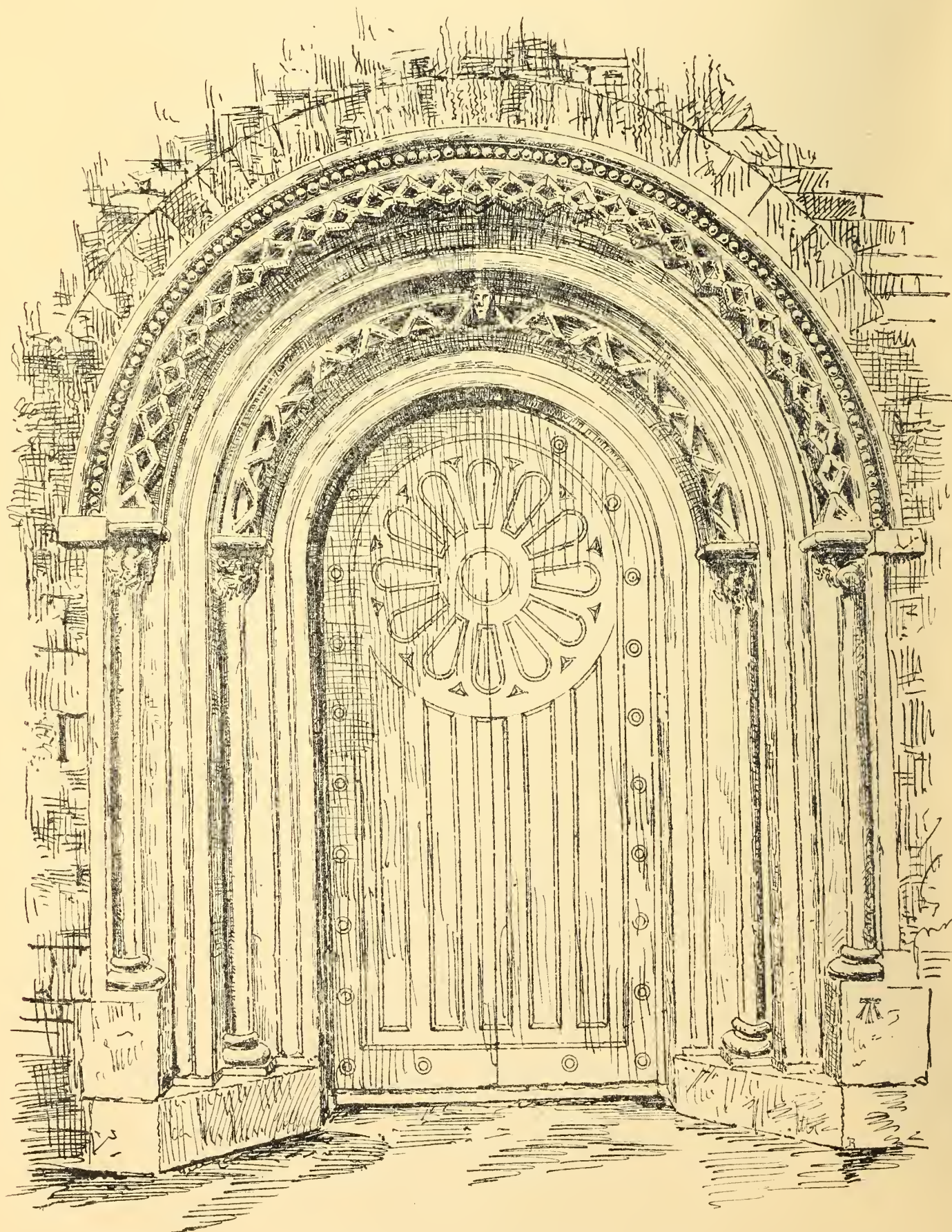
remains save posting the evil doer, and the articles of his craft, for the satisfaction of all men. It is hard, we know, to have to tread upon people's toes, but if people pared their corns, and wore a covering suitable for protection in glass houses, they might indulge in throwing stones as long as they pleased. "Printer's errors," cries the *Irish Sportsman*. It would be well, indeed, for the credit of our contemporary, if typographical errors only formed the sum total of its weekly outrages on good taste and decent literature. In our last issue we furnished abundant proof of its epileptic spasms and involved commonplaces—enough, we had thought, to have driven it to bay, or forced it to hold its peace, and "mend its life and sin no more." Not so, however, for on Saturday, July 22, a regular "pie" was presented to the public, hashed, rehashed, and rehearsed, in all its original sameness. We hardly know where to begin, whether in the "Aquatic" column, which is very watery, indeed or in the "Essence of News," which might be more appropriately ticketed "Essence of Ignorance." Here goes for an extract from the latter enlightened column:—"The cold and stormy June was very unfavourable for the development of the *Sprat* of the dainty morsel." Jupiter, what will Frank Buckland exclaim on reading this? Hear it again, ye gods and little fishes, ye bivalves and univalves—"The *Sprat* of the dainty morsel."

The critic next week will tell us, it is a "printer's error," no doubt, and that he meant "spat." He is evidently not well yet in the three R's, and sometimes uses them out of place. The critic next assures us "there was rain enough on St. Switheu (some time Bishop of Winchester) his day, to justify believers in weather prognostications." But our readers must secure the *Sportsman* and read the remainder. For elegant diction, and choice poetical extracts, nothing can equal it in Dublin.

The Corporation is next treated to a bit of intelligence which will, no doubt, astonish them. Listen: "The Corporation, however, rules the streets, and when Jupiter Pluvius reigus [does he rain hard or soft] it is hard to govern one's temper. This political body has the right of granting liberty to make crossings, or to make them itself, and it exercises this right with either much favouritism, or without much discretion. Take Great Brunswick-street, for instance: at the College end there is a crossing of great length, and in a most inconvenient position, leading from the competitive hat shop right into the middle of the College railings [are many impaled there?]. Going towards Westland-row you cannot cross for half the length of this long business street, where a person of business may want to cross several times, and then at the end opposite "Vousden" [is that a public building, or statue? there is another crossing, and within a hundred yards another. After that there is not another [bother] for a quarter of a mile, and that is near Sibthorpe's marble works. Comment is unnecessary." Comment, indeed, on the above graphic description is unnecessary.

We are then informed "there have been Baby Shows, Barnmaid Shows (no connexion we presume), Dog Shows." The only connection, perhaps, the critic could not see was that of the Baby Show, with the "Booby" Show that somebody was making of himself by the "*connexion*." We are twitted with approaching in our language towards "Billingsgate;" but even "Josh Billings" himself would like that that gate should get its proper complement of letters, and be addressed properly. Our critic informs us whoever throws dirt plentifully "*assuredly* some of it will stick."

We reply assuredly it will; but as we are a "delicate class paper" we never indulge in such indelicate pastime as dirt-throwing. If good and healthy training, and ripe experience in the chequered ways of Irish journalism in Dublin could make us wise, we ought to be wise—at least, we ought to know our business, and do not require to be informed by men who know not what they write



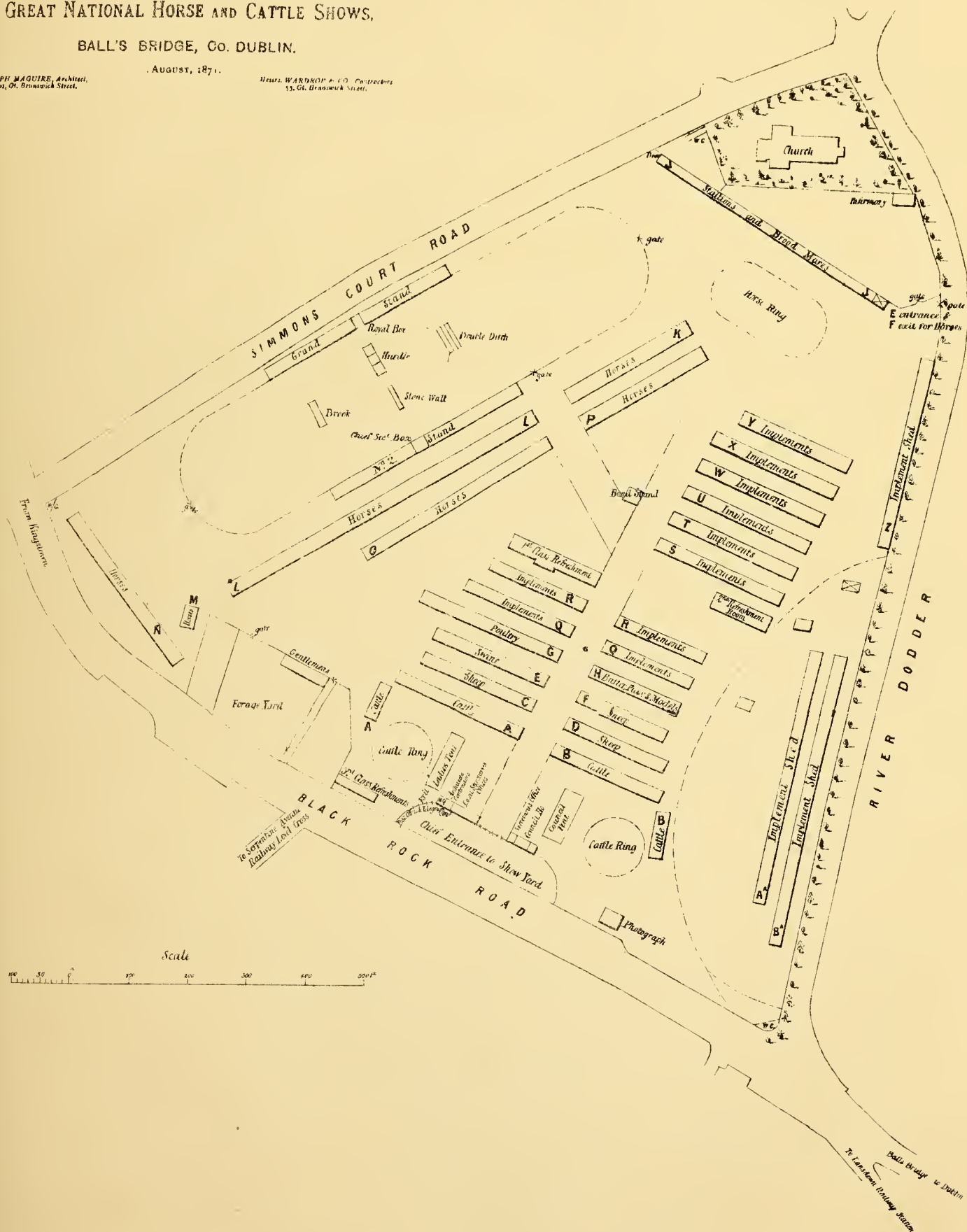
CHRIST · CHURCH · CATHEDRAL · EVANGEL · DOOR · IN · SOUTH · TRANSEPT

ROYAL AGRICULTURAL SOCIETY OF IRELAND.
GREAT NATIONAL HORSE AND CATTLE SHOWS,
BALL'S BRIDGE, CO. DUBLIN.

JOSEPH MAGUIRE, Architect,
201, Gt. Brunswick Street.

1ST AUGUST, 1871.

Messrs. WARDROP & CO. Contractors,
55, Gt. Brunswick Street.



about, and even the little they do know, cannot put it into a passable and readable form.

Listen once more to the diction of the *Irish Sportsman*:—"We took leave to suggest that professional people were not always the best judges, or rather the only ones." What does our "well informed" critic really mean? If professional men are not the best judges of professional work, who on earth are? Is a practical man the best judge of practical work? Are there such beings as practical botches? Did our critic mean that the above quotation should read as it stands, or read thus, "or rather [not] the only ones?" In its original or amended form it is an ill-judged and ill-expressed dicta, and has no applicability in the direction, or to the profession it was intended to apply.

The condescension illustrated by our critic noticing us is a wonderful exploit for a "big gun" like it with "three representatives" at the Kingstown Regatta. Rather scurvy treatment that of the Yacht Club, not to provide at dinner and "admit bearers" who were left out in the cold. Surely a paper which could afford to send "three representatives" to a sickly boat race at Kingstown ought to have displayed a better *animus*, than publishing the characteristic notice in its last issue, "To Subscribers, Advertisers, &c." Is the strong swimmer in his agony at last—eh?

Good breeding and gentle manners constitute the scholar and the gentleman, and not a hungering after flesh-pots or "cheap wines" at regattas or elsewhere, or aping the knowledge that only comes through hard work, and not hard drinking. We can respect a co-labourer in any literary field, and afford him an honest greeting, though his purse may not be so large as his heart; but there are literary snobs and literary ghouls at present infesting the Dublin press, who only merit the contempt of all honest men. Journalists they are not, scholars they never were, gentlemen they will never be. Like certain pseudo-artists who have in this city sat in judgment on the works of a true artist, they deserve the withering rebuke of our dead novelist, "artists who never should have taken up a brush in one hand without holding a shoe in the other."

Of a like description are some of the gentlemen who abuse the pen in the public service, and who are more fitted to act as the stokers than the conductors of journals. *Ægis*.

ARCHITECTURAL NOTES AND QUERIES.

In answer to your correspondent, Mr. Raymond, whose interesting queries appeared in your last issue, I am enabled to state that there was an architectural work published in this city in the year of 1793, by Richard Morrison, the son of John Morrison, and afterwards Sir Richard, entitled "Useful and Ornamental Designs in Architecture, composed in the manner of the Antique and most approved taste of the present day—the whole being peculiarly adapted for Execution." By Richard Morrison, architect. Folio. Crosthwaite. Price—to subscribers, 12s.; to non-subscribers, 14s.

This work was published in parts or numbers; the plates were very well engraved; the work was dedicated to the Archbishop of Cashel. The father of Sir Richard Morrison possessed good mathematical and scientific acquirements, and the family resided for generations at Middleton, county of Cork. Sir Richard, in his early career, practised at Clonmel for a while, but removed to Dublin in 1800, and served under Dublin's greatest architect, James Gandon.

Some scant notice of the lives of Thomas Cooley and Thomas Ivory may be found in the "*Anthologia Hibernica*" published in Dublin in 1793-4, and in Walsh's and Whitelaw's History of Dublin, or scattered through the four volumes of the *Dublin Penny Journal*, and other Dublin periodicals of older date.

The widow of Francis Johnston survived him for many years, and resided in Ecclestreet. The architect lies buried in St.

George's burial-ground, where he was interred some days after his death in March, 1829. Francis Johnston designed several public buildings in Dublin and elsewhere in Ireland. He had a private practice. He was generally believed to have been a native of Armagh. Whether he had any family or pupils, or who they were, or who was his own original instructors, the writer knows not at present.

I think there is a memoir of Edward Smyth, the sculptor, in some of the older volumes of the *Dublin University Magazine*, or the *Citizen*, a Dublin monthly magazine. Some scattered notes of his works may be made out here and there in the different volumes of the Dublin and Irish penny journals, and *Dublin Penny Magazine* of 1832-6 and 1840-1.

The figure of St. Andrew is still in existence, but when the present writer last heard of it, it was stowed away, and left to moulder away with a shameless indifference on the part of its custodians.

Perhaps some of your other correspondents will be able to answer the remainder of Mr. Raymond's queries. If not, I will try on a future occasion, when I have more time to think over the subject, to afford him fuller information.

Glad to see the *IRISH BUILDER* leading the way in such an interesting, historical field of inquiry.

AN IRISH ARCHITECT.

CORRESPONDENCE.

THE EMPLOYMENT OF SURVEYORS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Committee appointed by the Council of the Royal Institute of British Architects to consider the question of "*the employment of Surveyors*," in accordance with the resolution of the General Conference of Architects, 1871, having authorised us to collect from all available sources reliable information respecting the appointment and employment of surveyors, in reference to building works, we desire to avail ourselves of the publicity of your columns to invite the attention of architects, builders, measuring surveyors, and all others interested in this important question to the enquiry now being conducted, and to ask from them the immediate communication of detailed information as regards general principles or their own special practice.

We shall feel obliged by any communications on this subject being addressed to us at 7 Whitehall Yard, S.W., and are, &c.,

July 20th, 1871. ARTHUR CATES,
T. M. RICKMAN.

RAILWAY COMMUNICATION IN LEINSTER.

It is proposed, says the *Kilkenny Moderator*, to make a new line of railway, commencing at the centre of the great anthracite coal-field of Ireland, at a point near Masford-bridge, about three miles north-east from the town of Castlecomer, thence passing by Towlerton; down the valley of Killeslin, and across the river Barrow at about one mile south of Carlow, where there will be a coal siding to connect the traffic with that of the navigation; thence under the Great Southern and Western Railway, and along the river Barrow to near Tullow, where the railway will strike the line of the river Slaney as far as the town of Clonmel, where it turns in a north-east direction until it reaches Shillelagh, and effects a junction with the Shillelagh branch of the Dublin, Wicklow, and Wexford Railway. At Carlow it is proposed to form a junction with the Great Southern and Western Railway, by a branch of about one mile in length, and also to reach the limestone quarries and lime-kilns of Crossneen, Milford, and Raheendoran, &c., by a branch tramway of about three miles in length. At Clonmel a branch of about three miles long would be taken to Newtownbarry, which would ultimately be extended to the

flourishing town of Enniscorthy. We have not the smallest doubt that a railway will have the effect of improving and increasing the trade of the country contiguous to the proposed line. Several noblemen and gentlemen, it is understood, whose properties lie in the vicinity of the proposed railway, have given their support and adhesion to the project; the money market is favourable for floating the scheme. It is proposed that the line shall be what is now called a light railway, to consist of a single road with passenger sidings at intervals, and that its maximum cost shall not exceed £3,000 per mile. The works will be constructed substantially and economically, but will be throughout of a light character, that is to say, with light earthworks, light rails—say 40 lbs. per yard—and small stations, all made with the view to obtain a reasonable degree of accommodation at the lowest practicable cost.

SCIENCE AND ART STATISTICS.

WE believe the following are the chief results of the Science and Art Department, which have lately been reported to Parliament, and are soon to be published:—The numbers who during 1870 have attended the schools, museums, and other institutions receiving parliamentary aid considerably exceed those of 1869. There is a very large increase in the number of persons receiving instruction in science applicable to industry, which has risen from 24,865 in 1869 to 34,283 in 1870, or upwards of 37 per cent. The number of individuals instructed in art has also increased from 157,198 to 187,916, or 19.5 per cent. The lectures at the Kensington Museum were attended by 27,761 persons. At the Royal School of Mines there were 17 regular, and 124 occasional students; at the Royal College of Chemistry, 121 students; at the Royal School of Naval Architecture there were 40; and at the Metallurgical Laboratory, 24. The evening lectures at the Royal School of Mines were attended by 2,574 artisans, school teachers, and others; and 243 science teachers attended the special course of lectures provided for their instruction. At the Royal College of Science, Ireland, there were 17 associate or regular students, and 21 occasional students. The various courses of lectures delivered in connection with the department in Dublin were attended by 1,152 persons; and at the evening popular lectures, which were given in the Edinburgh Museum of Science and Art during the session 1869-70, there was an attendance of 1,195. The total number of persons, therefore, who received direct instruction as students, or by means of lectures, in connection with the Science and Art Department, 1870, was upwards of 254,000, showing an actual increase, as compared with the number in the previous year, of 67,000, or nearly 36 per cent., and an increase in the rate of progress of 8 per cent., the numbers in 1869 having been nearly 28 per cent. higher than in 1868. The museums and collections under the superintendence of the department in London, Dublin, and Edinburgh, have been visited during the past year by 1,847,929 persons, showing an increase of 49,087 on the number in 1869. The attendance at the Art and Educational Libraries at South Kensington, and the library at the Royal Dublin Society, continue to increase—the number of readers in 1870 having been 1,809, or 3.7 per cent. more than in the previous year, the respective totals being 48,244 in 1869 and 50,053 in 1870. The returns received of the numbers of visitors at local art and industrial exhibitions, including the Workmen's International Exhibition at Islington, to which objects were contributed from the South Kensington Museum, show an attendance of upwards of 816,000, the number in 1869 having been 838,000. Thus it appears from the returns of the different institutions and exhibitions by means of which instruction in science and art is afforded in connection with the department, that the total number of separate attendances during the year 1870 has been upwards of 2,973,000, or 25 per cent. more than in 1869, when it was 2,372,000.

AMATEUR PLANNING.

If there is one department more than another in which the intuitive genius of the public feels itself at home, that department is certainly planning. People who have never handled a pair of compasses in their lives naturally feel some little shyness in dealing with elevations. This shyness, indeed, by a common, if not a very elevated, tendency of human nature, often conceals itself under the guise of contempt. They know nothing, and want to know nothing about arches, and cornices, and frippery of that sort—anybody may fill in such things as these—their talent lies in the practical part of the thing—the plan. This plan not unfrequently they will attempt to draw, often to their own ultimate annoyance, and almost always to that of their architect. The man who has worked out a plan for his new house, has, it is true, brought his ideas into shape. He knows, generally speaking, what accommodation he intends to have, and has made up his mind on a variety of general principles. So far, he has been very usefully employed; and to this extent his work will almost certainly tend to his ultimate satisfaction. He is in a position to give what architects far too seldom receive, namely, definite information as to the sort of building he wants. With him it need not be altogether a matter of hazard—as it is with too many building owners—whether his house, as he sees it rise, is, or is not, the one he wanted. If matters stopped here—if he went no further than thoroughly to think over and settle his requirements—his architect would have every reason to thank him. An architect is too often expected not only to carry out his client's views, but to divine them before they are expressed; to find out the wishes of a person who has no clear idea as to what his own wishes are; and to put up a building which its owner will at last discover was what he wanted, though before it is built he will not take the trouble to decide or explain what he really does want. This source of unpleasantness—and a fruitful source it is—will probably be removed by the fact of a client putting his own notions of arrangement on paper. If he is a wise man, he will hand the sketch to his architect as an explanation of his wants; if he happens to be a conceited one, he will give it him as an instruction about the way in which they are to be met. Which he is most likely to do will greatly depend on his understanding the difference between a good plan and a good building.

Did all architecture, apart from detail and decoration, begin and end, as some people seem to fancy, in the invention of a good plan; and were a good plan, as the same people think, merely equivalent to a convenient arrangement of rooms and passages, architecture, instead of being one of the hardest, would be the very easiest of all arts to excel in. The design of a dwelling-house, on this supposition, would require about the same mental exertion, and that of much the same kind, as the winning of a game at chess with an average player. One of the practical puzzles in a boy's magazine would present a considerably harder problem to solve, and the youths of fifteen who master it would be the equals or superiors of a Wykeham or a Wren. Such planning as that of any great architectural work, we may be very sure, would never have emanated from the brain of one of these amateurs. They would have devised what they call a much better plan, that is, one which would look more plausible on paper, though, unfortunately, it could not have been executed in the materials. They never get so far as to discover that planning has a certain connection, amongst other things, with roofing; and the merits of their arrangements are due, in about 99 per cent. of the cases, to the fact that proportion and constructive necessities have been entirely ignored. These plausible plans make wretched buildings, for, unhappily, they do sometimes get as far as the building stage. When a rich or influential man happens to be seized with the delusion that he is a clever architect, he seldom stops till he has given the world an unmis-

takable proof of the contrary. He may be a diletante prince or nobleman bent on what he calls promoting the arts; and his favourite amusement may be playing at architecture, rather than at politics. Of two evils, the world ought perhaps to thank him for inflicting the less; but his blunders, even in bricks and mortar, are an evil, and one cannot help wishing that they took a more ephemeral shape. He may be an officer in the army (why should the navy never have its turn?) set up by the wisdom of our superiors to design our national buildings, and make us believe that they are built without an architect. In this case it will be his duty—and, if he is a gentleman, by no means a pleasant duty—to get his designs made by the ablest architect who will work for him, and then to suppress the designer's name, and allow them to be talked of as his own. The necessity is a disagreeable one, and the whole process, if conducted by common people, might be called by ugly designations. Circumstances, however, alter cases; and every one will see what a dreadfully levelling and democratic effect it would have, to let it be supposed that an ordinary mortal, without powerful friends or family connections, could work for the gods, and help to beautify the Olympus of Kensington. Nature, indeed, has a most reprehensible way of distributing talent, without regard to the "Peerage" or any similar publication, and is sometimes blind enough to link genius to an unknown name, while she spares an illustrious one scarcely brains enough to keep it out of the mire; but if Nature shows no better, there is the more reason why her mistakes should be corrected; and if we cannot prevent her from bestowing eminence on the wrong people, we can at least help to destroy the value of the gift. To join talent to position is, indeed, beyond our power; but we can do the next best thing, we can more or less smother, suppress, and ignore all talent that springs up beyond the boundary line; we can either trample its life out, or dwarf and crush it; or, at the worst, we can appropriate its labours, and give to another man its reward. That every one should get credit for his own productions is a very fine sentiment to work up in a speech or an address to art students; but the "fitness of things," as Mr. Square would express it, plainly shows that such an idea should never be actually put in practice. To patronise science and art is all very well, always assuming that the patronage is kept within the proper circle. Let Captain A., or Colonel B., be the recipients of it; they can easily find some one to do the work for them; and they, too, like so many other people, are great at planning; it only remains for their subordinates to make the plans feasible. Unlimited funds, however, and a free use of iron girders will make most plans feasible; and if, in spite of extravagant cost, the result is neither a permanent building nor a well proportioned one, this is merely the price we pay for having aristocratic sham architects instead of ordinary real ones. In our happy land, however, every class is an aristocracy to the classes beneath it, and the very denizens of Olympus might laugh to see how their practices are travestied below. The eminent tradesman, who plays the part of "leading man" on some committee of his class, often patronizes art in the very same way as his betters. In some cases he represents in his single person the whole aristocracy of the district, so that no one but himself is worthy to receive his patronage. He, therefore, bestows it as fitness dictates, and appoints himself architect, or at least "director of the works." He, too, has his ideas. "Some demon whispered, 'Visto, have a taste!'" and a taste he has, in the direction of planning. He gives the committee a "plan," and sees it carried out by a builder, unless his business happens to be one which enables him to execute it himself. As the works proceed they give him proofs enough that planning and designing are far from being interchangeable terms; his simple plan involves a thousand difficulties and complexities he never dreamed of; and he flounders through his undertaking with every step

marked by some bungle or absurdity, which would make any but an "influential man" the standing joke of the neighbourhood. His delusion is gone, it may be supposed; his first experiment in planning will be his last one. Not at all, monomaniacs are not so easily got rid of. The lunatic who believes he is made of glass is not cured by finding that he survives a blow in the ribs; and the one who thinks himself a master of arrangement thinks just the same though all his arrangements fail. But he does learn wisdom by experience, in one respect, and though he will continue to make blunders, he has no idea of continuing to be blamed for them. He will appoint an architect, who shall have none of the control, and all the responsibility. There are plenty of young men to be found who are not in a position to be very independent; he will select one and employ him. We need not detail the rest; the architect's situation will easily be understood. Pestered with one folly after another; forced to carry out the inspirations of his patron, who brings him, with a shout of "Eureka," ideas that an intelligent child might laugh at; with all his advice neglected, and all his designs destroyed, he will be wise if he resigns in time. It will be well for him if he does so at first, and leaves no mongrel product, which the world may fancy is his own. He will inevitably have to do so in the sequel, for he was not employed without an object. Perceiving that he is never left to think for himself, or to carry out his own designs, he may sometimes wonder why his services were ever asked for: by waiting long enough he will discover. When Visto's blunders have at length accumulated so that even his high place can scarcely save him from the consequences, when the very committee begin to clamour that "this is really too bad," he quietly turns round and points to the architect. Well knowing that he has never been allowed the slightest discretion from first to last, with a clear remembrance of his daily protests against the absurdities which he was compelled to superintend, he introduces him to his colleagues as the author of all their calamities. "Here, gentlemen, is Mr. X., who is solely responsible for your buildings, and who will doubtless be able to defend the details which you have so severely criticised; I leave him to settle the matter with you." So the farce concludes. If the architect says nothing, he is dismissed for carelessness and incapacity; if he brings the whole scheme to light, he is dismissed with yet greater haste, for slandering the influential member. No matter though he has proofs in black and white, enough to hang a dozen men, they will not avail him before this tribunal. The committee of the "Asylum for Decayed Cats" cannot afford to blame their leading member, and after showering on his victim as much abuse as the law of libel will permit, they pass a unanimous resolution to thank Mr. Visto for the care, skill, and attention, which he has so unremittingly lavished in their service.

This is, unfortunately, no fable, but a simple narrative of ordinary facts. But it still has a moral for the young architect, and that is, "Never consent to carry out ideas which you do not heartily approve of." Take pains to form a right judgment, and then stand by it; and let Mr. Visto and his relatives, great or little, perpetrate their own blunders in their own names. It is bad enough to pass a lifetime in producing good work for which some one else receives the honour; it is a great deal worse to pass it in producing bad work of which you will have all the disgrace. It will not even pay in point of money, for the gain it brings in at first will be dearly purchased by the ultimate loss. For an honest man, the one way of rising in his profession is to do his work well, and, as a means to this, to keep clear of people who want to make him do it badly. Such small profit as can be got out of "Decayed Cats' Asylums," and similar institutions, with a Visto for leading member, it is better to renounce at once. A wise man will decline to sup in the company where such a very long spoon is

desirable, and will feel that the paltry remuneration offered does not cover the risk of being victimised by an unscrupulous mock-architect.

A LOST EUROPEAN CITY.*

As a striking example of the manner in which legendary lore of the wildest and most improbable character may sometimes receive confirmation through the investigations of modern science, the following may be acceptable to some of the readers of the *Athenæum*.

The legend which it is sought in this case to restore, in a measure at least, to the realms of truth, is one with which Mr. Tom Taylor's translation of Breton songs have rendered most of us familiar. Moreover, the ballad which embodies it has been brought of late before the notice of the public, by being singled out in the violent attack on M. de La Villemarquez's 'Barzaz Breiz,' which appeared in the *Athenæum*, as being palpably an invention of that patriotic antiquary's brain. The subject of the ballad is the "Fall of Is," and the main points of the story are these: In the time of King Gradlon (the first Christian king of Armorica) the chief city of his kingdom was Is: it was situated far to the West, close to the sea, and so low that it was protected from the inroads of the tides only by a gate, of which the king himself kept the key. Now, after a feast, at which Gradlon is rebuked for his excessive libations by his minister, St. Gwénolé, the Princess Dahn, his wicked daughter, at the instigation of a lover of hers, Prince Conan, steals the key of the sea-gate from her sleeping sire. Conan then opens the gate, and the liberated ocean comes roaring over the plain, the king being obliged to fly on horseback, with his faithless daughter behind him. The waves, however, overtake him, and it is only when he obeys a voice from the billows, which calls on him to cast away the devil from behind him, and throws Dahn into the water, where she is left to perish, that the torrent stops and he is saved. Thus says the ballad, and in truth, there does not in all this seem, at first sight, to be much worthy of credence. Calling history to our aid, some faint light, however, is thrown on the subject. In the first place, the king, the chief actor in the story, is not a myth: there was a king Gradlon, Graalon or Gradalonus, and he was the first Christian king of Brittany. He flourished in the fourth and fifth centuries, and founded the celebrated Abbey of Landévenec, where both he and St. Gwénolé were interred. Of the loves of Dahn and Conan, and of the other subordinate incidents of the legend, we, of course, only hear in song. Of the existence of the town of Is, and of its locality, however, tradition has something to say. Not only do the present inhabitants of the western coast firmly believe in their lost town, but they all point to what is now known as the Bay of Douarnenez, as its former site. That these beliefs are by no means of recent growth, may be easily shown by referring to old Chanoine Moreau's 'Histoire de la Ligue en Bretagne,' written at the beginning of the sixteenth century, where he distinctly mentions that they were prevalent in his day, in exactly the same form as they are at present. In the same work the chronicler notices a number of facts, tending to give substance to what was even then merely tradition. Of these the following are the most to the point.

1. That several well-made and carefully-paved roads of very ancient origin converged from various parts of Basse Bretagne, such as Quimper and Carhaix, towards a point in the southern portion of the Bay of Douarnenez, where there was, and had been for centuries, nothing to explain them, and ended abruptly at the coast-line. Traces of these roads are even now very distinctly preserved in many places. 2. That the Abbots of Landévenec were compelled, by the terms of their tenure, to come once a year and formally take possession on the beach at Pentrez, the nearest

land to the traditional site of Is. This they continued to do to the end of the last century.

To these facts the modern editor of Chanoine Moreau (M. Le Bastard de Mesmeur) adds, that at Lanval, a place at the end of the Bay of Douarnenez, are still visible the foundations of an ancient chapel, concerning which it is a saying among the surrounding peasants that "Seiz mantel skarlek ha tri-gent, hep hevel ar ré all a zeûe euz ar gêar a Is d'ann ofren da Lanval;" that is, "Sixty-seven scarlet cloaks, without counting others, came from the town of Is to hear mass at Lanval." Again, a saying, which I have myself heard in the country, and which, it appears, was current in the sixteenth century, is, that "Is ne cavas par da Paris"—"Since Is nothing has been seen equal to Paris." According to Moreau, the termination *Is* of the names of several neighbouring towns and villages, such as Kerhaes, Kerhaez; Montroules, Montroulez; Brestis, Brest, &c., were said to be derived from that of the submerged city.

Thus far antiquarian evidence tends, to a certain extent, to prove the existence of a town, somewhere in the Bay of Douarnenez. It is circumstantial in character; but, from the nature of the case, it could scarcely be otherwise. It is true that I have repeatedly heard sardine-fishers in the Bay declare that they had seen towers and walls looming in its depths; but such testimony may be dismissed with that of the gazers into Lough Neagh. The question now resolves itself into this: there is traditional proof of land having existed at a not very remote period in the Bay of Douarnenez, where now is nothing but water: is this in any way corroborated by physical facts?

A glance at a chart of the western coast of Brittany, on which soundings are marked, will show that a very slight elevation of the land would bring the whole of the Bay of Douarnenez out of the sea—say twenty fathoms or thereabouts; much less would be required to reclaim its southern portion only. That the whole of the Brittany coast was submerged, in Miocene times at least, to a very considerable extent, I have endeavoured to show elsewhere; but a submergence of incalculably more recent date than this is required in the present case, but, at the same time one of far less magnitude. On the shores of the Douarnenez Bay itself, no signs of any comparatively recent subsidence of the land have as yet been observed, and the same lack of evidence of this kind characterizes the coast to the north of it; to the south, however, such evidence exists, and in this wise.

A little to the west of Concarneau, within an easy walk of that town, is the Bay de la Forêt, the name of which should at once cause geological ears to prick up. It is very shallow, much used for oyster culture, and with a bottom consisting, below tide-marks, almost wholly of coralline. At its northern extremity, the bottom rises gently into a flat sandy beach, bounded by low boulder-like masses of granite. This beach is seen to be thickly studded with blackened trunks of trees (mostly oak, I believe), and is, in fact, all that remains visible of a now submerged forest, similar in all its chief characteristics to most of the well-known examples on our own coasts, with this exception, however, that after examining the features of the country immediately surrounding it, no one, I think,—not even Colonel Greenwood,—could imagine it to be an estuarine forest. Beyond doubt, we have here a perfect case of subsidence, the period of which is, geologically speaking, quite recent, if indeed it be not even now in action. It can be but a fair inference to suppose that the force which has lowered this piece of wooded land was also felt in a similar manner only a few miles off on the same coast, in the Bay of Douarnenez. If a date could be assigned to the beginning or height of the Concarneau depression, the explanation would, of course, be much more perfect, but as these phenomena, even though on a small scale, as in the present instance, were very gradual and slow in their working,

this is manifestly impossible. It is quite sufficient for my purpose to have shown that there exists a great probability of the bottom of the Bay of Douarnenez having sunk together with the neighbouring coast beneath the sea level, in comparatively recent—say, in historical—times. A strong *prima facie* case is thus made out for Is, and one which rests on more than legendary testimony. From the starting-point now secured, much that is obscure in the tradition is rendered susceptible of easy interpretation.

That the sinking of Is is in the ballad spoken of as very rapid is only what one would expect from the probable facts of the case. The time when the town and the surrounding plain became at last uninhabitable, notwithstanding the precautionary dykes and gates (the very mention of which points to long years of gradual but alarming subsidence), would in the history of a people, and especially in their legendary history, be looked upon as the actual time of submergence. The flight of the king would naturally be the removal of his seat of government, which the sinking of the land, ever looked upon by the vulgar as the rising of the waters, would render most necessary. All these occurrences lose every appearance of extravagance and myth when looked at by the light of the simple little geological fact of the Bay de la Forêt.

Antiquaries may perhaps find good grounds for disbelieving in Is, but the geological evidence at all events is entirely in favour of its existence.

NAAS COURT-HOUSE.

THE attention of the Grand Jury of the county Kildare was directed by the judges at the Spring assizes to the wretched accommodation in the court-house at Naas. In connection with the subject the County Surveyor says in his latest report:—"In accordance with an order from last grand jury, I reported to your committee, after an inspection of the court-house at Carlow, that it is not possible to carry out entirely Chief Justice Whiteside's recommendation, to assimilate the proposed arrangement of your record court to that existing at Carlow; but there are some features in the Carlow arrangement—not, however, peculiar to it—which ought to be adopted. I have prepared a plan for your court, adapted to its size and other circumstances, following also as closely as possible the Chief Justice's instructions; this plan has been approved by the committee, and is now submitted for your consideration. The court-house is much in need of painting and repairs."

At the meeting of the Grand Jury, Mr. Mansfield said he regretted that Mr. Brett did not mention in his report that the plans submitted to the committee were approved of, and that the great difficulty in not having the improvements carried out was in *not being able to get any person to undertake the contract*, notwithstanding that tenders were solicited by means of advertisement in the public papers. His reason for drawing attention to it was that he thought the judge of assize would wonder that nothing was done during the long interval from the time he called the attention of the grand jury to the subject.

In the report of the Board of Superintendence of the gaol (as given in the columns of our contemporary the *Leinster Express*) we find the following passage:—"No estimate can be made for court-house repairs and alterations, until the plans prepared by the County Surveyor are further considered. These plans appear to have been elaborately prepared, and the space at disposal utilized; yet although some improvements may be effected, the outlay must be considerable, and we fear the result will not be satisfactory, and that no amount of expenditure or practicable alterations can convert the present building into a commodious or convenient court-house. Still, we have endeavoured to carry out the wishes and suggestions of the judges. We advertised for tenders to execute the plans of the county

* From the *Athenæum*.

surveyor; met for the purpose of considering them, but none had been received. It was then too late to repeat the advertisements, or effect the proposed alterations before the present assizes. We have furnished the apartment hitherto occupied by the court-house keeper as a waiting-room for jurors, and have instructed the County Surveyor to have certain repairs effected."

L A W.

AN ANCIENT LIGHT CASE.

ROLLS COURT—JULY 21.

Robb v. Connor.—His honor delivered judgment in this case, which was before the court for several days in the early part of last June. The bill prayed that defendant might be restrained from erecting a proposed building, or any building whatsoever, upon the piece of land in his possession, so as to darken, injure, or obstruct the free access of light and air to the ancient windows of the plaintiff, as the same were enjoyed previously to the taking down of the buildings formerly erected and standing on the piece of ground of defendant, and that defendant might be enjoined from permitting to remain such portion of his said building as had been already built, or darkens, injures, or obstructs such free access of light. It appeared that plaintiffs now are, and have for nine years been, the owners of No. 11 Castle-place, Belfast, where they have carried on trade as wholesale and retail drapers. There are ten ancient windows in the east side of their premises, and on a piece of ground on that side defendant is erecting a large warehouse. The buildings which formerly stood there were 24 ft. distant from plaintiff's premises, and of a mean height of 26 ft. Defendant's building was in its different parts 44 ft., and 34 ft. 6 in. distant from plaintiff's premises, and varies in height from 57 ft. to 64 ft. During the erection of the premises, plaintiffs offered to agree to have it left to the decision of an eminent architect to determine how far there was a material obstruction, and that defendant's building should be modified accordingly. To this proposal defendant did not consent, and the present suit was instituted. At the hearing of the injunction motion it was directed to stand to the hearing of the cause at the risk of defendant, who, since then, has completed the buildings. His answer submitted to the court whether plaintiffs are entitled as of right to any special enjoyment of light, and denied that the building caused the alleged injury by the obstruction of light. His honor dissolved the *ad interim* injunction, and dismissed the bill with costs, on the ground that there was not such an obstruction of plaintiff's light as would warrant the court to interfere by injunction.

ROTTEN MORTAR—A PRESS ACTION.

James Hughes v. William Trimble.

THE following case was heard before Mr. Justice Lawson at the recent Assizes for County Armagh. Plaintiff is a builder carrying on business in Charlemont; defendant is the proprietor of the *Impartial Reporter*, Enniskillen. The action arose out of letters published in defendant's newspaper, reflecting on the quality of the sand and mortar used by plaintiff in the building of the new Roman Catholic church in Enniskillen. The alleged libel was a statement that the sand and mortar were rotten. Damages were laid at £1,000. Defendant pleaded that the printing and publication of the alleged defamatory matter were not in the defamatory sense therein alleged, and that the publication was not a libel.

Messrs. Falkner, Q.C., and Munroe, were for plaintiff, and Messrs. Law, Q.C., and Porter, for defendant.

Mr. Falkner, Q.C., in stating the case for plaintiff, said the alleged libels were contained in the following paragraphs, published in the *Impartial Reporter* on the 9th and 16th of March last:—

"The new Roman Catholic Chapel will be altered from the original plan, which necessitates the taking down of some new walls that had been built. It is well that it is so, for the rotten mortar caused by the mixing of bad sand that had been used would have tumbled the building on some public occasion when a larger congregation than ordinary would have assembled. The building should be handed over to a competent clerk of works at once."

NEW ROMAN CATHOLIC CHAPEL.

TO THE EDITOR OF THE FERMANAGH REPORTER.

"Sir,—Your notice of the defective mortar that had been used in the building has done good. The committee of management will have no more bad sand in the building, and Mr. Wray will supervise it. The chapel walls will be from 70 to 100 feet high, and they must be well built, to stand and make the house safe. Thanking you on behalf of the parish for your timely notice, I am, Sir,

"CATHOLIC."

"We are glad to learn that the house, which is expected to last for ever, will be properly built; but it is well that the parish should know that Mr. Wray has nothing to do with the oversight of the building. We heard him disclose he had nothing to do with it."

Mr. Falkner went on to say that he considered that these letters reflected on the character of his client. In a succeeding publication the defendant inserted a kind of half apology, which was really no apology, and only made matters worse. The jury should show by their verdict that a gentleman holding the responsible post of the defendant was not to abuse his position by attacking respectable traders.

The plaintiff stated that he was contractor for the building of the new Roman Catholic Chapel at Enniskillen. The sand used in the building was good, and no bad sand had been used at all. There were eighty loads brought from Killynure, but it was all of the best quality.

Cross-examined.—Never demanded an apology before instructing my attorney to take proceedings. Did not even send an attorney's letter. Never wrote for an apology, nor asked one until I began my action.

Mr. John O'Neill (O'Neill and Byrne, Belfast) said that their firm had charge of the carrying out of the work. The mortar and sand were good and unexceptionable. With regard to the article published on the 9th of March, he considered that it cast an imputation on the character of the contractor. Rotten mortar could not have been put in by a practical man without his knowing it. The article contained reflections on the competency or honesty of the contractor.

Mr. James Hillock considered the article of the 9th of March cast an imputation upon the builder.

Mr. Porter—Do you consider it casts an imputation upon himself or upon his work? Upon both.

His Lordship—Did you ever hear of stone being used in building the new Houses of Parliament that turned out to be bad? I did.

Mr. Falkner—Did you ever hear that there was a very great impeachment of the builder in consequence? Indeed I did not.

Mr. Bell considered the article reflected upon the contractor's honesty.

Mr. Porter—Do you think that the man that does not carry out his contract as it should be is necessarily dishonest? I do.

The letter of the 16th March was admitted.

Mr. Porter said a more absurd action never was brought into a court of justice than that in which the present plaintiff, James Hughes, claimed damages in consequence of the alleged libel contained in the article that had been read to them. The idea of fishing a libel out of an article of this description was the most absurd and the most hopeless one that could possibly be made. He maintained there was nothing at all in the article to hold defendant up to public contempt, and all that was done was to complain of the sand and mortar used in a public building. If any person had a right to complain it was the clerk of works, because the article might be taken as meaning that Mr. Rea, the clerk of works, was incompetent. The article neither meant nor

said the contractor was dishonest. It was not a libel on a man to say his business was not properly conducted, or that his goods were not proper unless the statement injured him in his trade. It was no libel to say a man's goods were not good, unless it was followed by proof of some special damage.

The defendant was examined by Mr. Porter.—Visited the chapel while the work was going on, and saw sand from Killynure. He had no ill-feeling against the plaintiff, nor against any man on earth, and he had no intention of imputing dishonesty or incompetency to the plaintiff. There was no clerk of works engaged when the article was written. He never thought of Mr. Hughes at all when he wrote the article.

Cross-examined by Mr. Falkner—Was the mortar rotten? It was rotten, and not fit to build a pig-crew. Is that a pig-house? Oh, worse than a pig-house.

Mr. Falkner—For the democracy of pigs? Something like what an old woman would have for her pig!!

Would you employ Mr. Hughes yourself? I would, but I would take good care that he would not use Killynure sand. Are you a builder yourself? Oh, I'm a good many things. You're a jack-of-all-trades and master of none? Were you the writer of the second article? I got the words from Johnny M'Grorty, the brother-in-law of Neddy Holmes, who said the mortar was bad, and I penned it. Is Johnny a polite man? He thinks himself so. Did he say "thanking you on behalf of the parish for your timely notice?"—Oh, he said a great many things. The words he used were, "There was the devil's own row, and there is an end of the bad sand." And you translated them into "thanking you on behalf of the parish?"—Oh, he said that, too. Is Master Johnny a learned man?—Well, he's an intelligent painter and glazier.

Witness still maintained that the mortar was rotten, and said he had a sample of it in court, which could be examined. He was never asked for an apology, but would have inserted one with great pleasure had he been asked. He had no intention of reflecting at all on Mr. Hughes or his sand as regarded himself—he only thought of the desirability of having a well-built house of worship in Enniskillen.

Mr. Falkner, in addressing the jury on behalf of plaintiff, contended that the rule of law was that all words spoken of a man to his degradation, either in his moral character as a man, or in his professional character, were libellous. If one said of a lawyer that he was incompetent, or of a carpenter that he was incompetent, or of a soldier that he did not know how to do his business, that was libellous in the eye of the law, even though there was no proof of any special damages.

His Lordship, in charging the jury, said they were constituted by law the judges of the two questions which arose in this case. The first was whether the little article complained of was a libel at all or not, and the second was whether it bore the meaning which the plaintiff had fixed upon it. In directing their attention to these two questions, he could only lay down generally what the law was, leaving it to their own good sense to apply them to the facts of the present case, which had been called on one side a trumpety case, and on the other side a case of great importance. The action was one against a newspaper proprietor for an alleged libel in an article. In his opinion a public journalist was perfectly justified, if a public building was being erected in the town where he lived, and if he was of opinion (as the defendant was, whether rightly or wrongly) that a mistake was being made in construction, and that insufficient materials were being used which might lead to subsequent disasters or disappointment, in commenting upon them and pointing out the mistake, he was privileged to do so.

Mr. Falkner—There is no plea of privilege here.

His Lordship said he was aware of that.

BOOKS RECEIVED.

The Journal of the Royal Historical and Archaeological Association of Ireland. April, 1871.

THE quarterly part of this journal, just received, embraces the usual quantity of interesting matter to be found in the proceedings of the Society. There is also a lengthened paper by Major-General Lefroy "on a Bronze Object bearing a Runic Inscription found at Greenmount, Castle-Bellingham, Co. Louth."

Picturesque Guides to Killarney and Cork, to the Western Highlands (Connemara); from the Graphotyping Co., London.

We have not time to do more than acknowledge receipt of these books in emerald green paper.

A DEAD SUBJECT.

A story there runs of two Irish cats,
Who worried themselves instead of the rats,
Till of head and body and feet bereft,
And nothing of each but the tails were left.

A moral from this all men may deduce,
And apply it to matters of public use.
The City Council for years, it is said,
With fighting, are left neither tall nor head.

The City for water had cried thirst,
Till the pent up ire of the public burst.
With plague in the air and the Liffey's bed,
We may drink to "Our absent friends"—*The Dead,*
Civis.

HOW NATIVE SCULPTORS ARE ENCOURAGED.

THE fame of Mr. Foley, the sculptor, is (say^s a morning journal) part of the heritage of the Irish people. We are all proud of the genius which has enriched the land of his adoption, and even the land of his birth, with so many noble triumphs of his chisel. But there is one thing which is more precious to Ireland than the fame of any individual artist; it is the vitality of Irish Art itself. It is something, it is, indeed, a good deal—that in every generation one or two of the foremost London sculptors can be claimed by Ireland as the children of her soil and race. It would be a far greater thing that Ireland should be the home of a famous school of sculpture, and that from all parts of the world orders should flow in to the studios of Dublin or Cork or Belfast, and students should bend their steps here to form their genius and mature their powers. The material benefits, the moral influences, the intellectual rank which would accrue to Ireland from the possession of such a school appear to us worthy of the nation's most serious study and most strenuous effort. That there is nothing impracticable in the enterprise we conclude from the known artistic genius of the Celtic race, and the illustrious Irish sculptors who under all disadvantages of early difficulties and national neglect have in every age adorned the annals of art. Now, it strikes us that Ireland might do much towards this end if she made but a prudent use of her own patronage. At present all that the most patriotic committee of a statue or monument feel themselves bound to do for their country, is to give the work into the hands of some distinguished London sculptor, Irish by birth. Sometimes the committee invite designs from a limited number of artists, English and Irish, but exclude from that number Irish artists residents in their country. This is putting a premium on artist absenteeism, and almost compelling every ambitious Irish sculptor to transfer his studio to the English metropolis. It is a policy which not only deprives the resident artist of his bread, but broadly brands him with a stigma of inferiority. The general public, who take no special concern in works of art, except the easy task of admiring them, naturally conclude that there are good reasons for the committee's action. Either the resident artist is devoid of genius, or unreasonable in his terms, or slow in execution. The last thing the public thinks of is that a committee of gentlemen who are profuse in their expressions of patriotism and of a hearty appreciation of everything Irish, should be themselves the slaves of an anti-Irish prejudice. When the Eglinton Statue Committee invited designs, no invitations were sent to resident

Irish sculptors. The statue is a work most creditable to its author, Mr. McDowell, but not superior in the judgment of those who are supposed to be competent critics to the statue of Smith O'Brien or Captain Boyd in St. Patrick's Cathedral, or the beautiful memorial of Archbishop Murray in Marlborough-street Cathedral, all three the works of Mr. Thomas Farrell, R.H.A. Then as regards cost, the Eglinton statue cost, we understand, £4,000, the O'Brien only £1,000, and the Boyd memorial still less. As regards the expedition with which the work is turned out the advantage neither is nor could be expected to be on the side of a great London artist. The O'Brien statue was completed in twelve months from the time it was commenced. The O'Connell monument, for which £12,000 was collected long years ago, is hanging fire still in Mr. Foley's hands. The foundation stone was laid in 1864 by Alderman M'Swiney, who will perhaps see about the completion of the statue as soon as he has got the Education Question off his hands. It is nine years since £6,000 was raised for the Albert memorial, and we can only hope to live to see the day when Mr. Foley will have time to finish it, and the committee to appropriate the interest of the money to some work of public utility. It is one of the penalties of acknowledged genius, especially when placed on a metropolitan pedestal, to be unable to grapple with all the demands made upon it. Works of art are not like other commodities that can be produced *ad libitum* by turning on fresh capital to their production. Alexandre Dumas, indeed, is said to have trained a batch of assistants who filled up the outlines given by the master into novels which the public accepted as all his own. But we never heard any allegation of this sort made respecting Mr. Foley, and we suspect that in sculpture it would be impossible. It is said that Mr. Foley has work on hands sufficient to keep him fully occupied for as many years as even younger and stronger men than he could calculate on. His orders for Irish public work must be but a small fraction of what England and the world demand of him both in public and in private works, and yet the former alone amount in cost to £24,000. There is the Albert memorial, £6,000; the O'Connell monument, £12,000; the Lord Rosse, Lord Gough, and Guinness statues, £6,000 more. As Irishmen, we rejoice at so grand and solid a homage paid to our country's genius, but as Irishmen also we ask whether we do not neglect native genius when resident among us, in thus adding to the triumphs of a brain and hand already overcharged. We are promised the Grattan monument within five years. Within that five years our greatest resident sculptor may have left us, driven from our own shores by our own perverse neglect, and the hopes of founding an Irish school of Sculpture may be indefinitely deferred. If Ireland is content with a provincial role—if she aspires to no loftier destiny than that of supplying farm produce to Lancashire and Yorkshire, and the raw material of intellectual and artistic power of England, well and good; let the Grattan and the O'Connell, and the other so-called National Monument Committees have their way. But if Irish nationality is to be anything better than an *ignis fatuus* or an imposture, the twaddle of feeble coteries, or the mask of heartless and venal demagogues, the persons who serve on these committees ought to awake to the duty of so administering the trusts reposed in them that the land may not be laid as bare of its artistic as it is of its hereditary nobility.

MISCELLANEOUS.

The foundation stone of St. Jude's Episcopal Church at Ballynaveagh, Belfast, was laid on the 22nd ult. This will be the tenth of a series of churches which are being erected in Belfast. The ceremony was performed by James T. B. istow, Esq.

The foundation stone of the new Industrial Schools at Artane, county Dublin, will be laid on the 15th inst. Messrs. Meade and Son are the contractors. The estimated cost about £20,000.

The question they had to consider was, whether the article was an imputation on Hughes, or whether it was merely a commentary made by Trimble on insufficient materials introduced into it. One could understand that, before a contractor entered upon the work, it was arranged between him and the committee that the sand was to come from one place and the stones from another; and, if he used the sand and stone, agreed on, even though they turned out bad, he could not be held accountable. He could not find in the article any imputation of fraud, or impropriety, on the part of Hughes, who was not named in it. Indeed he (his lordship), on reading it, would think that the person reflected on, if any, was some clerk of works; for the last clause of the article might bear the meaning that there was an incompetent clerk of works, and that he did not properly examine the sand or mortar. If they were of opinion that the article was merely a commentary upon the materials themselves, and that it did not impute any fraud or impropriety to Mr. Hughes, they ought to find for the defendant. Then, again, they could not find for the plaintiff unless they were of opinion that the sense, the meaning he had put upon it, was the meaning that ought to be attached to it. The meaning he put upon it, in the first count was—"The defendant, thereby, meaning that the plaintiff was in collusion with an incompetent clerk of works for the purpose of erecting said building with improper materials." That would be a libel if the article was capable of having that meaning; but none of the witnesses ventured to put such a meaning upon it as that—that he was in collusion with an incompetent clerk of works. The next innuendo, according to the next count, was that the plaintiff had used bad and insufficient materials. That would not be a libel, unless it meant to impute either incompetency as a tradesman—and it was remarkable that the summons and plaint did not say that the words were written of the man in his trade at all—or introducing inadequate materials when he knew they were inadequate. There was nothing of that kind imputed to him. The question was whether they would put this construction upon it, or what he thought a reasonable construction, that the defendant, having been a sort of amateur builder, and having convinced himself, whether right or wrong, that the mortar was bad, he thought it was his duty to point it out to the committee. There was one part of the case which had been observed upon, and he thought properly. He (his lordship) had said he thought a public journalist, when he did not name persons, ought to be protected in making a fair commentary on public matters; but any person who thought there was a libel published about himself in a paper, and who, though knowing the editor of that paper, had not the courtesy or common decency to communicate with him and ask him what he meant, but at once handed it over to his attorney, the first intimation the defendant received being the service of a summons and plaint, ought not to be encouraged in his conduct—a jury was bound to discourage proceedings and practices of that kind. That was his strong opinion upon the matter. Of course it was for them to consider whether that accorded with their own good sense. It would be a dreadful thing if a public journalist was to have an action of that kind launched without having an opportunity of saying—"I never intended to mean you at all; I was only commenting upon the materials." It was not alleged by any one that Mr. Hughes had sustained damage. He (his lordship) thought it was a great deal more calculated to damage him that he had brought an action against a newspaper without even the ordinary courtesy of saying he was going to do so. If they thought of giving any damages in the case, he considered the smallest coin in the realm would be enough; but it was for them to say whether there was a libel at all, or whether it was capable of bearing the meaning imputed.

The jury found a verdict for plaintiff, with a farthing damages.

At the half-yearly meeting of the Munster Bank, held in Cork, a dividend at the rate of eight per cent. per annum was declared.

THE ENGINEERS' STRIKE.—The strike of the engineers at Newcastle and Gateshead is likely to be protracted much longer than was at one time anticipated. All overtures for a conference between the employers and the men seems to have ceased, and the men are laying themselves out for a considerable prolongation of the strike. They are getting as many of their number as they can to work outside the town, and on Tuesday several left for America. The consequence of this great disturbance in the industrial arrangements of the Tyne are likely to be disastrous to all concerned, and orders for machinery are going out of the district weekly.

THE DESCENT OF MAN.—The favours of the development theory have given us many points of similarity between men and monkeys, but our already dubious ancestry is now further complicated by Mr. Charles Darwin, who points out the identity of the "snarling" muscles in man with those which display the teeth of a dog preparing for attack. Man no longer uses his teeth as weapons, but when he "snarls," he threatens to employ them so. This fact must have been observed by the Greeks, when they dubbed a sarcastic, bitter-tempered man a cynic, which word means doggish or doglike.

SUBSTITUTE FOR ALBUMEN.—The enormous consumption of whites of eggs, in albumenizing paper for photographic purposes, may be doomed to come to an end. *Dingler's Journal* announces a substitute for albumen for this purpose, under the name of lactarine. It is a white or slightly yellow powder, with the colour of casein. When subjected to ether, a small amount of saponaceous fat may be extracted from the mixture. The powder resists water, but is accessible to the influence of the alkalies, either caustic or carbonated. Treated with the proper proportion of either acetic or hydrochloric acid, a curd is precipitated, which is found to be soluble in excess of the acid. In use, it is dissolved in ammonia, and can be coloured to any required shade.

ARSENIC IN WALL PAPER.—Hitherto it has been generally supposed that only papers entirely green, and of a very bright shade of green, were arsenical, but the fact is, as proved by the analysis of eminent chemists, that every paper which contains any green in the pattern, no matter how little, or of what shade, as a general rule contains arsenic, and is, therefore, injurious to health. One shade of green is no safer than another, for the very palest greens frequently contain large quantities of arsenite of copper, the brilliant colour of which is toned down to any degree of paleness by the addition of chalk, and sometimes of white lead; the result being that pale green papers often contain just as much arsenic as those of brighter colour. The quantities of arsenic used in green papers appear almost unlimited, varying from the fractional part of a grain up to the frightful amounts of six, nine, fourteen grains, and upwards, to the square foot. I have beside me some pale green papers, the analysis of which gives those amounts, and the illnesses produced by those papers proved in some cases all but fatal. I have also by me a paper with green leaves on a white ground, containing no less than eight grains to the square foot, which caused most serious illness. Papers of a very similar description are to be seen in the majority of dwelling-houses, from the palace down to the navy's hut. It is rare to meet with a house where arsenic is not visible on the walls of at least some of the rooms. When obliged to leave home for a time last summer, I rejected upwards of seventy lodging houses, because in none of them could there be found six rooms where the papers were free from green colouring.—*British Medical Journal*.

It is said that the much-talked-of tunnel across the Channel between England and France is now in a fair way of being carried out, and that the plan of M. de Gamond has been accepted by the French Government. The works, which are estimated to cost about £12,000,000, will be commenced on one side at Dieppe, and on the other side at Newhaven.

THE IRISH TRAMWAYS BILL.—The Marquis of Hartington has given notice of several amendments in this Bill, among others the following important addition to the first clause:—Every tramway which is hereafter authorised under the authority of this Act, or other Acts to be read together with this Act, shall be laid and maintained in such manner that the uppermost surface of the rail shall be on a level with the surface of any road along or across which the same shall be laid, and no such tramway shall be opened for public traffic until the same has been inspected and certified to be fit for such traffic by an engineer to be appointed for such purpose by the Board of Trade.

ASPHALTE AND SUNSHINE.—The spell of hot weather graciously vouchsafed to the city of London within the last few days, however beneficial it has been to various interests, has not served the prospects of portions of the asphalt pavement, as any visitor to the neighbourhood of Lombard-street or Gracechurch-street might have discovered for himself. The condition that is expressed in the words "as cool as a cucumber," is just that state of weather that agrees with the constitution of our asphalt roadways. Should we be favoured with a continuance, or an accession in intensity of the summer heat, the watering-cart or hose will be as necessary appendages for maintaining the solidity of our new roadways as they are in laying the dust on our old ones. A plastic asphalt surface is in nowise considered or coveted for vehicular traffic, and it would be an unfortunate event if, after all the cost, obstruction, and delay that have attended the introduction of our latest, and still most useful road material, to find that it fails in some of the most useful essentials, viz., the retention of its hardness and body, under all conditions of the atmosphere. After all, the hot weather may not have come in vain, if it gives us a good and timely opportunity to benefit by its occurrence, in the improvement of our road construction, and in the better selection and manipulation of the present and similar material for the future. Experience teaches, it is said; but the right of way is often blocked by vested interests, which neither shower nor sunshine has been found to materially affect. In the present instance perhaps the power of the sun will turn men's minds nearer to a conviction of the truth than the power of the pen, and those who are more immediately interested will improve and profit accordingly. We need scarcely say that our remarks are not made in disparagement of the asphalt pavement, but as a hint to further practical efforts for the direction of improvement.—*Builder*.

ROYAL HIBERNIAN ACADEMY.—At a meeting of the Royal Hibernian Academy, held on Tuesday, the 18th ult., Mr. Augustus Burke and the Hon. Lewis Wingfield were elected associates of the academy, and Sir George Hodson, Bart., an honorary member.

The School of Typography, established in Leipzig a few years since, is to be considerably extended as regards its course of teaching. It already educates a large number of young artisans, who are not only instructed in the technical knowledge relating to their profession, but also in foreign languages and other subjects of which an accurate knowledge is desirable for a typographer. For the sake of authors as well as printers, it is to be wished that some corresponding institution existed in England.

JUSTICE BEFORE GENEROSITY.—There is a balance of £285 standing over from the proceeds of the Shakespeare Tercentenary Festival, and a meeting was held at the Society of Arts on Monday to consider what to do with it. We should like to know if this balance belongs to the Society which conducted the proceedings at Stratford-on-Avon seven years ago, and if so how many other outstanding claims remain unsatisfied, for if one we have submitted for advertisements some scores of times were settled, the balance would be less by eight shillings and sixpence. There was another undertaking completed some time since amid a great flourish of trumpets and with great honour and glory to the local grocers and cheesemongers concerned—we mean the Belfast Albert Memorial. We take to ourselves the credit of having (quite unwillingly) contributed a sovereign, all but sixpence, to the funds of that undertaking, in the shape of advertisements. It is rather a pity that when so much money is spent in connection with these matters on "the pumps and vanities," a few pounds cannot be spared to pay for the advertisements ordered in connection therewith.—*Building News*.

THE PATENT LAWS.—At a recent meeting of the London Patent Agents, held to consider the proposed changes in the patent laws, Geo. Haseltine, M.A., chairman, it was resolved:—1. That inventors have a right to the sole use of their inventions, which it is the duty of legislators to harmonize with the interests of the State. 2. That patents should no longer be granted to mere "first importers," but should be confined to actual inventors. 3. That the term of a patent should be twenty-one years—(now fourteen)—without provision for extension. 4. That the official fees should be reduced from one hundred and seventy-five to ten pounds for the entire term, which is sufficient to defray the expenses of an efficient patent system. 5. That the French mode of granting patents—without official investigation of the merits of the application—should be adopted. 6. That in patent suits the rights of patentees should be determined by a competent court of equity, dispensing with jurors and "expert" witnesses.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO., Homoeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

THE Illustrated London News, speaking of Benson's Watches in the Exhibition, says:—"Ranged around the clock were the watches which Mr. Benson exhibited, and which have been universally admired for the beauty and elegance of the designs engraved upon them. The movements are of the finest quality which the art of horology is at present capable of producing." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's Illustrated Pamphlet on Watches, Clocks, Jewellery, Chains, &c. (free by post for two stamps), contains a short history of watchmaking, with descriptions and prices. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the World, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Ludgate Hill, and Old Bond-street, London. Established 1749.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

INSOLVENTS.

William Louch, late of Molesworth-street, city of Dublin architect and civil engineer, trading as William and Thomas Louch; also captain in the 1st Cheshire Militia, in England.

TO CORRESPONDENTS.

J. J. C.—Thanks for your endeavours.

R. D. Harrogate.—Nothing further about Mullingar Competition. We shall probably publish the premiated design.

T. F., Darwen.—Your communication will be attended to in next No.

J. L.—Mr. W. B. Kelly, Grafton-street, is the publisher. We can supply the work, on receipt of amount in stamps.

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ILLUSTRATION: SKETCH OF A TOWER.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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The Irish Builder.

VOL. XIII.—No. 280.

The O'Connell Monument.



WING to the dissatisfaction expressed by the citizens of Dublin, a meeting of the O'Connell Testimonial Committee was arranged for on the 8th instant, at which Mr. Foley attended to give a statement respecting the work on which he has been for some time engaged.

It is unnecessary for us in this city to enter into any minute particulars in relation to Mr. Foley's commission, as our readers are already familiar with the facts of the case. A general belief, however, exists in Dublin that Mr. Foley has been unnecessarily delaying the execution of the O'Connell Monument, not purposely, but because he has already too many orders on hand. The contributors to the fund, and the citizens at large have of late become rather uneasy on the subject, and have given vent to their feelings in unmistakable language.

They require to know of Mr. Foley, when or at what period they may expect that the statue is to be finished. Mr. Foley's statement affords us very little information on this subject, as he does not appear to bind himself to any particular date.

Taking his own statement as we heard him express it, or that of his published one, we are nowise sanguine ourselves as to the very early period that may be looked to for the completion of the monument.

Some years have now elapsed since Mr. Foley undertook this work of Irish art, and speaking candidly and honestly we must agree with some earnest members of the committee, in believing that the work has been hanging fire. If there had been no money in hand to advance to the artist, we could excuse the delay; but as we understand sufficient funds are in hand to liquidate the sculptor's claim, therefore expectation is rife on all sides.

No one questions the sculptor's ability, and scarcely any person fears that the work will be less in merit than what is expected, still at the same time the olden contributors to the fund, and the citizens of Dublin, cannot brook further delay in the matter.

Six years is a long time to wait from order till execution; and as the case stands no guarantee is given that the six years may not grow into twelve or more.

Artists or sculptors have no lease of their lives more than other personages, and though many of them can impress their genius upon the mind of their age, and raise a monument to their own and their country's fame, yet the proverb that tells us that "delays are dangerous," in this instance must not be forgotten.

Mr. Foley, we believe, is a native of this city, and the capital is proud of his worth; but if Mr. Foley was a second Phidias, Praxiteles, or a Thorwaldsen, Canova, Flaxman, Gibson, or a Hogan combined, we would feel no temerity in expressing our belief on the matter in question.

The statues of Goldsmith and Burke grace our city, and the citizens of Dublin are satisfied as to their execution, and the Smith O'Brien monument is worthy, in point of execution, of taking its place beside them or apart. These statues have not been delayed an unusual time, and on all sides satisfaction is consequently felt.

Independent of the politics or the mission of O'Connell, all are agreed that he was a wonderful public man, and one who struggled in the interest not only of his party but the interest of Ireland in *globo*. Being in his grave we can forget his frailties, returned to dust we can forgive his mistakes as mortal, but being once a Titan in the public arena, whose eloquence was exerted in the interest of the common weal, we must remember him as a great Irishman worthy of being honoured and remembered. The generation of youth who grew up under the shadow of his name are now waxing old, and they must be excused if they feel more than an ordinary interest in all or aught that attaches to his memory. We, therefore, join issue with them all in hoping that the O'Connell statue as a work of high art may soon adorn our finest thoroughfare, and not only contribute to the ornament of the city, but to the fame of our native sculptor.

In conclusion we would venture to suggest that when works of Irish art are required, and when monuments are proposed to be erected in future in Ireland, that the resident artist will not be overlooked.

The Messrs. Farrell have given forth from their studio works that none can cavil at, and there are other artists in Ireland not deficient in the artistic capacity that can create as well as execute. The school of Irish art that Edward Smyth founded, and that blossomed and ripened under the ægis of Hogan, is not yet extinct; and we are sanguine in the belief that though Mr. Foley has lifted himself as well as his art to a higher standard, we can still look forward to greater feats of the sculptor's skill on the soil of Ireland.

NATIVE LITERATURE, AND THE PUBLISHING TRADE IN IRELAND.

IRISH intellect is rife in both hemispheres, and Irish literary talent is making headway in all quarters of the globe; but notwithstanding all this, it is a humiliating task to have to chronicle that in this capital a literary market there is none, and that the Irish publishing trade is all but dead. Dead—when compared with what it once was—and lifeless and powerless almost for native, industrial, and influential purposes.

Newspapers we have, in sooth; miserable periodicals we have a few; but the old race of Dublin publishers have all died out. Not one antique and hoary-headed member of the craft survives upon the banks of the Liffey. Castle-street is long since weeded out; Dame-street and the Quays have followed suit, and in name, and name only, Sackville and Grafton-streets retain one or two houses, linking the present with the past. London, like a huge unwieldy monster, has absorbed the literature of Ireland, and sweat of brain and brow that was of erst expended in the development of Irish literary resources flows through other but native channels to-day.

The history of literature in Ireland during

the present century, which means, in other words, the history of the publishing trade, is a sad and chequered recital indeed. Hale and hearty men are alive who remember when the Dublin Press groaned beneath the burden and glut of books, pamphlets and serials, and when readers could be found in abundance to encourage the publications emanating from the Press of this city. The college student could find not only old but new editions of the "Classics" issuing from the houses of Irish publishers, and the ecclesiastic and the medical practitioner could also obtain works suitable to his study and profession in this city without having to send across channel for them. The houses of Cumming, on Ormond-quay, and Macken, of D'Olier and Westmoreland-streets, flung forth their hundreds of volumes; the Porters, the Tims, the Millikens, the Wakemans of Grafton-street; the Fitzpatrickes, Coynes, and Graces of Capel-street, and Dame-street also, and several others in that quarter, gave us many a goodly and portly volume in history, poetry, and romance. The presses of the Folds and Hardys gave us rich and racy serial publications, and the Currys and their contemporaries, before the M'Glashans and Gills turned up on the publishing arena, furnished us with many an interesting and instructive volume of historical and legendary lore. During the last quarter of a century we even had something in the shape of book-craft to boast of. Hodges and Smith, M'Glashan, Kelly, and one or two more, kept alive by intermittent publications the olden literary life of the capital, and the late James Duffy, in his own particular groove, made two or three energetic attempts to sustain a little of the publishing spirit that once sent a thrill through the island, and infused a soul under the very "ribs of death."

It would form one of the most curious and strangest investigations ever entered upon by any individual were he to attempt the anatomy of literary spirit in Ireland—how it struggled, how it triumphed for a while, how it fell, and finally, how it has been allowed to lie uncared about, abandoned, in fact, by those who should have been its best fosterers. Why has the London Mint mark been deemed necessary to push a good volume into notoriety? and why is it requisite for resident authors not only to secure the name of a London publishing house, but, in addition, have the paper, printing, and all the accessories of his book, got up across channel? The answer to the interrogatory, no doubt, would be that "it would not sell" if printed and published in Ireland; in other words, if it was known to be written, printed, published, and issued in Dublin, people would believe that it was of no great value, and therefore not worth purchasing.

Whatever seeming belief in this way may exist—and we believe ourselves some such belief exists among a certain circle—the sooner it is exploded the better. This fallacy must be exposed, and means must be taken to show the erring and mistaken crowd that no foreign mint-mark is indispensable to render a book passable, or insure its being read in this country. If education has done aught for our countrymen, and if common sense has a dwelling within their brain, they ought to wake up to the perception that they have been duped a long time in many matters. Unfortunately, a good deal of blame attaches to our gentry and nobility for the utter indifference they have manifested in regard to

Irish literary works produced in Ireland. It would seem that when the nobleman and the landowner became an absentee, his tastes became centred in the place of his location. With a forgetfulness of things at home, and a presence of mind of matters abroad, his patronage ceased to be bestowed in that quarter which enabled him to bestow it at all. Where the wealth of the country went, the intellect of the country was supposed to follow; and though follow it assuredly did to some extent, many years elapsed before a disheartening picture, such as we see now, was presented.

Dublin can, however, win back its former *prestige* in the publishing world by a little common sense and energy. To do this, however, with more effect, it is necessary that the Irish Press should be outspoken and honest. A newspaper in this matter ought to feel that it is a portion of literature, and no inconsiderable portion; and that the more it encourages literary genius and talent to develop its powers, the more it subserves its own interest. The Press should enlist, encourage, and defend literary interests everywhere; and the Irish Press, by doing so, would mark a new era in their own existence. Few of our journalistic writers here in this island have latterly done so: they have constituted themselves critics of works which they could not understand, and praised efforts which were utterly worthless from every point of view, save perhaps that of the marine shop.

It is the greatest of folly to suppose that bad literary productions can be written into "lasting" popularity. A mushroom existence may be secured, but the intrinsic merits alone possessed by a volume on a useful or interesting subject will be its only guarantee for long life. Really valuable works, we know, have been published from time to time in Ireland, which have not met with a proper appreciation, and at the hands of journalists have been "damned," so to speak, with faint praise. This evil besets authorship in London as well as Dublin, because a mercenary and selfish spirit vegetates in certain little hole-and-corner cliques and coteries.

Many Irish newspapers have lamented the decline of the publishing trade of Ireland, and yet they have not, either individually or collectively, assisted it to live. Numerous books, to our own knowledge, have been published in this capital; yet the Press of this city have scarcely noticed their appearance, because the proprietors and editors of these journals did not receive an indirect inducement, and sometimes a direct one, for drawing public attention to them. A public newspaper is more or less, no doubt, supported by its advertising interest, but the good word that a book or its author may deserve should not be regulated by the liberality that an author or his publisher is enabled to show. The criticism that is begot of such a system is neither honest nor manly, and to this system may be attributed much of the abuse now in full bloom.

Will we ever be able to establish a really healthy literary spirit in connection with the daily Press? Under the present system of conduct of public journals we fear it will be a long time before honest criticism is developed. We have very little earnest and honest reviewing of works, whether mere literary, or on art subjects. A few first-class publications in England, and two or three professional ones, perform some valuable service; but the huge majority of the serial

and newspaper Press indulge in hollow phrases and mere cant. Our journalists are not scholars, as a rule, and journals of late days in Great Britain are taken up like other ventures as commercial speculations. They are worked at high pressure; light and flippant literature takes the place of useful and solid instruction. Sophistry and generalization monopolises the space where common sense should be found, and the upstart dictator is discovered in the person of the whilom pedagogue. Thus the pigmies of literature move apace, dwarfs in intellect and by nature dwarfs.

Returning to the subject of our opening words, we must again express regret at the low state of the literary market, and the condition of the publishing trade in this city. Let the old citizens of Dublin scan the picture for a moment. Who are the publishers of our books? who are the printers and publishers of our magazines? The *Dublin Review*—Ireland's quarterly (*sic!*)—is built up body and soul in London: English printed, English published, but not altogether written by Englishmen; Irish intellect to a great extent influences its pages and constituency. And our own poor *University Magazine* has now become a London "waif and stray." Oh, give us back but one monthly number of it, rich with the creations of Lover, Carleton, Otway, Ferguson, Anster, Mangan, Lever, Wills, and numerous others of our boyhood days. Alas! the *University Magazine* is a "changeling," and we can hardly claim it as ours, though by parentage it certainly is. Knocked about by Dublin and London publishers, treated like Punch and Judy's child, its future career cannot be of long duration, and one more death will have to be added to the list of strangled Irish magazines. Within the last decade a few feverish attempts have been made to resuscitate the serial literature of Ireland upon a small scale. Some of these attempts have been partly successful, but only for a short while, and for reasons that we need hardly define; the vestiges of them can scarcely be said to exist. Of present living magazines in Ireland little need be said, and little can be said with effect. We wish it were otherwise.

Apart from all we have written and may yet write upon our subject, we now assert that it is possible to develop a good serial literature in this city, and establish once again on a firm footing the publishing trade of Dublin.

Our writers, authors, and journalists crowd the cities of America and Great Britain. The monthlies, quarterlies, and weeklies are in the main written by Celtic intellect. Whether it be in the field of romance or in the field of science, Irish writers are many, and they meet with honourable recognition and reward outside our shores; inside them, however, it is otherwise at present.

A better public and national spirit shown on the part of our merchants, gentry, and traders, and a little plain speaking and fair dealing on the part of the Irish Press, would give a healthy tone to native feeling and native morals, and soon aid in reversing the flow of the unnatural current of thought which has long been swamping all that has been bright and racy in the land. To be an Irish nation we must be thoroughly consistent in our enterprises and our actions. If we build, we are supposed to raise our structures by Irish labour and with native materials. The author is a worker as well as the mechanic; brain sweat and brow sweat must be in harmony; and he who raises an

edifice to his own memory, and elevates the character of his native land by his pen, has needs to be fitly provided for at home. If an Irish architect can support himself by the practice of his profession in Ireland, an Irish author ought to be enabled to do so too. With Irish writers and authors in abundance, why not Irish publishers? We fear that some censure must attach to our publishers of late here in Ireland. They lacked the spirit of their predecessors in the last century and early in the present. Where a liberal spirit should have been exemplified, a petty huxtering one was shown, and creed and caste were allowed to interfere in their commercial transactions, to the detriment of authors, publishers, and public alike. This is one of the reasons why some of our modern Irish houses have collapsed, and why we have scarcely now one good publishing house in Dublin.

We do not despair, however, of seeing the day when Irish writers will see their works issuing in thousands from Irish presses, and when the Irish author need not be forced to emigrate, but will find recognition and requital for his services at home. Some up-hill work will have to be encountered to accomplish this; but if journalism in Ireland acts an honest part, the public tastes will soon be shown in the encouragement given to Irish authors, publishers, and printers, and in the firm establishment of a true literary spirit, not only in Dublin, but over the entire of the island.

DUBLINIENSIS.

CORRESPONDENCE.

A WORKING MAN'S VIEWS.

THE SOCIAL POSITION OF AGRICULTURAL LABOURERS.

TO THE EDITOR OF THE IRISH BUILDER.

"The want of an orderly and comfortable home is among the chief evils of the poor."

SIR,—The education of the poor is, without doubt, the first and most important aid that can be rendered them by their richer and more gifted brethren; but another means of bettering their condition—second only to mental culture—is the providing them with comfortable homes—a permanent home for themselves, and one in which to bring up their children is the greatest physical want of the poor. It is the feeling of insecurity and dread of sudden change partly consequent on this want that causes so much discontent amongst the labouring classes in Ireland. The Lord Lieutenant boasts, and so do members of Parliament, that there is a land measure passed which enables the humblest peasant in the land, as he comes from the cottage-door to breathe the morning air, to feel that he can walk in the sight of God and man, to know that what he owns belongs to him. Trusting the Legislature might do much towards permanently bettering the condition of the present cottagers, which is a disgrace to the land, their present extreme wretchedness in these respects will, it is hoped, make any suggestion acceptable to those who have heart and time and means to devote to the cause of human improvement. Mr. Editor, I know Ireland well—I know the agricultural labourers well—I have long lived amongst them, and I can describe their condition with confidence. In those localities of Meath and Cavan where no other works exist, agricultural labourers have only 7s. 6d. per week; they work hard, long hours, exposed to inclement weather, and with this wages they cannot procure for themselves and their children a sufficiency of the necessities of life. They rarely if ever taste meat. I have known many able-bodied men who have to go through a long day's fatigue, have nothing for dinner, day after day, only

a few potatoes and a small bit of bread and milk. Their strength is prematurely exhausted, and they often become old men at an age when, if they were better fed, they would be in the prime of life. Their condition always verges to pauperism. It should be recollected that the trial has never been fairly made to ameliorate the condition of the great body of the people. The landlords only looked for their rents when due. That objects calculated to arouse and interest the intellect and feelings have never been systematically presented to them, and, more than this, it is not till the physical wants of man are in part satisfied that he finds time and opportunity for thought. It is a libel on Creative wisdom to suppose that having bestowed on him such glorious faculties, and having placed him in a world calculated to afford them scope and exercise, he will be for ever blind to their influence.

The cottages in Ireland are so bad in towns and country districts that they scarcely deserve the name of human dwellings. All the children of the family are commonly huddled together in one bedroom, every decency of life must be ignored and forgotten; these rooms—damp floors made of clay, and walls damp for want of proper covering, no windows, an old hat a substitute for glass, no proper flues, and the smoke issuing from the door. Well, sir, a family crowded into a single and narrow apartment, which is a living room, kitchen, bedroom, nursery, and often hospital, must, without great firmness and self-respect, be wanting in neatness, order, and comfort. Another unhappy influence on the poor is their living in the sight and in the midst of innumerable comforts and luxuries which are far above their reach; from this flows their envy and discontent, and in a measure their crimes justified to their own minds by what seems to them the unjust and cruel inequalities of social life. Sir, on entering an improved cottage, with a neat cultivated garden, in which the leisure hours of the husband are pleasantly and profitably employed, it will be found that he has no desire to frequent the beer-shop, or spend his evenings from home. The children are trained to labour, to habits and feelings of independence, and taught to connect happiness with industry, and to shrink from idleness and immorality. The girls make good servants, obtain the confidence of their employers, and get promoted to the best situations. My experience in England amongst the people in the manufacturing districts shows to me the man that lives in a good comfortable cottage feels that he is somewhat raised in the scale of society; he sees his wife and family more comfortable than formerly, he rises in respectability of station, and becomes aware that he has a character to lose, and he doubles his exertions to maintain it. Having acquired these important advantages, he is anxious to retain and improve them. On the other hand, a man who comes home to a poor, comfortless hovel after his day's labour, sees all miserable around him—his spirits more often depressed than excited by it—he feels that, do his best, he shall be miserable still, and is too apt to fly for a temporary refuge to the ale-house or beer-shop. By giving him the means of making him comfortable by his own industry, I am convinced by experience that in many cases he will avail himself of it. The census of 1861 showed that in Ireland there were 89,000 houses with but one room for the family, regardless of age and sex. In those hovels there were huddled half a million of human beings. An extract from a newspaper, dated twenty-eight years ago, says:—"Out of a population of 471,985 souls in the three counties, Meath, Westmeath, and King's County, 200,000 have disappeared and gone, and in the same period out of 83,137 houses 29,461 have disappeared from the face of the land. So much shows discontent."

The late Mr. Charles Dickens writes in one of his works:—"Oh, for a good spirit who would take the house-tops off with a more potent and benignant hand than the lame demon in the tale, and show a Christian

people what dark shapes issue from amidst their homes to swell the retinue of the destroying angel as he moves forth among them, for only one night's view of the pale phantom rising from the scenes of our too long neglect, and from the thick and sullen air, where vice and fever propagate, together raining the tremendous social retributions, which are ever pouring down and ever coming thicker. Bright and blest the morning that should rise on such a night, for men, delayed no more by stumbling-blocks of their own making, which are but specks of dust upon the path between them and eternity, would then apply themselves, like creatures of one common origin, owing one duty to the father of one family, and tending to one common end to make the world a better place." T. F.

Darwen, July 26th.

[We think it right and fair that our workmen should have their say on matters that peculiarly interest them, and which otherwise present an important social aspect. Thinking thus, we freely give place to our correspondent's letter, and we care not to take any exception to his remarks. He no doubt writes as he feels, and his *animus* is rightly directed.]

DEPUTY COUNTY SURVEYORS OF IRELAND.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Society of Deputy County Surveyors, alluded to in the last number of your journal, is not defunct. I hope the pamphlet long since promised will shortly be forthcoming, and that it will have the effect of drawing the attention of the public at large to this ill-paid and over-worked body of men, who are treated at present like the dumb animals when past service—are shot or sent about their business to graze on the highways and bye-ways. C. E.

"AMENITIES OF THE DUBLIN PRESS."

"OUR contemporaries the *IRISH BUILDER* and the *Irish Sportsman and Farmer* have been indulging in amenities the reverse of polite towards each other, and the last number of the first-named paper—a very ably-conducted organ, its readers must acknowledge—concludes an article styled 'The Crucifixion of the Critic' in the following strong and significant terms—"There are literary snobs and literary ghouls at present infesting the Dublin press, who only merit the contempt of all honest men. Journalists they are not, scholars they never were, gentlemen they will never be. Like certain pseudo-artists who have in this city sat in judgment on the works of a true artist, they deserve the withering rebuke of our dead novelist, 'artists who never should have taken up a brush in one hand without holding a shoe in the other.' Of a like description are some of the gentlemen who abuse the pen in the public service, and who are more fitted to act as the stokers than the conductors of journals.'"—*Leinster Express*.

[We are done with the critic. After a crucifixion nothing remains but burial. We are amenable to the law, and will not continue the vivisection of the animal. Neither dogs nor men are kicked by us when they are on the ground. *De mortuis, &c.*—Ed. I. B.]

STRIKE IN THE BUILDING TRADES.

THE strike still continues in the several branches of the building trades, two or three firms only, through pressure of contracts, having conceded the workmen's demands. The evil effect anticipated from the beginning has begun to show itself in the importation both of foreign workmen and materials. The

annexed resolution of the stucco plasterers' body, published in the morning journals, speaks for itself. Our constituency must draw their own conclusions as to the result of the *animus* that dictated it:—

FOREIGN IMPORTATION.—Resolved—That we, the stucco plasterers of the city of Dublin, do not go to work for a sub-contractor imported into this city by any general contractor for three months after the differences between master and employer are settled. HENRY MURTAGH, Secretary.

We greatly fear that the stucco plasterers have not adopted the best means of accomplishing their desires, admitting for the moment that they are in the right. Foreign importation is one thing; a home "dead lock" is another. Whether it is not better to retain one's employment if possible on honourable terms at home, or be forced to look for employment abroad? This is a mechanical age, and a highly competitive one, and in fighting against the tendencies of the time we fear our workmen are fighting at a fearful disadvantage. If work is to be accomplished the capitalist will not scruple to employ every available means that science places within his reach. Our workmen of a past generation have been left stranded in their struggles, and it is only by co-operation and an amicable spirit they can hope to secure the value of their labour.

HOW TO GUARD AGAINST CHOLERA.

A CORRESPONDENT of the *Times* says:—Cholera is reported to have been some time in Persia, to have passed through Russia, and to be travelling Westward by Poland and Pomerania, where by the last accounts, it has made itself pretty severely felt. In fact, it is following the route it always has followed, and obeying the same natural laws incidental to epidemics. Now, what we have to do—and we are not a whit too soon, for we have before this had a taste of his presence—is just to meet our enemy fair in the face. We know exactly what he will do if he seizes hold of us, and therefore we ought to know pretty well what to do with him. Let us clear our minds of all the technical verbiage and rubbish with which this serious matter is surrounded. We have no time for theories; we want facts, experience, determination. We have had proof enough lately what havoc vacillation, stupidity, and timid action have wrought in another disease; let not the same culpability manifest itself here. In cholera, one word, and one only, should be our watchword—cleanliness. With such an armour we may safely wait its attacks and predict success. Sanitary laws mean little more than this—let our air be clean, our water clean, our bodies, soil and dwellings clean. Reverse this, and we know what follows. Where the hyssop of cleanliness is sprinkled on the lintels of our thresholds the destroying angel passes on; but where foul air, fetid water, impure drains, and personal filth abound, there will cholera make its sojourn, and devastation reign. Do not think these are idle words, they are stern realities drawn from hard, practical work in climates where the dreadful truth is preached daily and hourly, and where this more fortunate land may, if it will, learn many a lesson. Let, therefore, the practical conclusion be once more urged on all authority—legislative, executive, municipal, domestic. Let purity of water, by better supply or more scientific filtration—let bodily ablution and household cleanliness, free ventilation and more perfect drainage, healthful exercise of the mind and body, moderation and temperance—be the rule and not the exception. Difficult, it may be said, in many cases, yet still practical; impossible all, yet possible some, till a general feeling of the truth of these great principles and a sense of security force themselves on the intelligence of the country, and ideas that were once considered Utopian may be accepted as binding on the nation and indispensable to the public weal.

HISTORICAL SKETCH OF DUNLUCE CASTLE.*

THE district which we have visited to-day, while of unrivalled interest to the student of nature, by the extraordinary geological phenomena exhibited, the sublimity of its cliffs and promontories, and the varied beauty of its indented shores, is also of extreme interest to the antiquarian and historian, from the many memorials of human work to be met with in every direction—ancient fortified duns, raths, entrenchments, and “embattled steepes,” crowned with the glories of other years. Of these latter we have here before us, in the Castle of Dunluce, one of the most important and picturesque examples. Before entering, however, into a description of these extensive remains, let us take a brief retrospect of the history of the district in which these ruins stand. This brief retrospect is not only necessary to illustrate the history of Dunluce, but it will be interesting in itself, as it was here that perhaps the most remarkable event in British and Irish history occurred—viz., the migration of the Scots of Ireland to the neighbouring shores of Scotland. In the beautifully expressive Celtic, this part of Ireland was designated *Andruim*, or *Endruim*—signifying the “Habitation upon the waters,” an epithet in itself truly descriptive of its long line of shore, broken by so many bays and headlands. According to Drummond, the name Antrim is derived from *Tir-an niam*, meaning the land of caves, with which the coast abounds. The earliest inhabitants were a race of Celts, or Scoti, designated *Darii*, or *Darini*, by Ptolemy; and in the ancient nomenclature this portion of the county was termed *Dalriada*; the southern and south-western *Dalarida*. This is derived from Cairbre Riada, one of the three celebrated Cairbres, sons of Conaire II., who led the first Irish colony into North Britain—Argyleshire—about the middle of the third century after Christ (*vide* Usher). Nennius, who lived in the seventh century, mentions the regions of Dalarada as the ultimate settlement of the Scythian colony in Ireland. We have thus in the modern term Route a most interesting memorial of a great historical fact. “There are few local names in the British Islands,” says Joyce, “more venerable for antiquity than this—preserving, with little alteration, through the turmoil of seventeen centuries, the name of the first leader of a Scotie colony to the coasts of Alba.” Three centuries later, a fresh colony of Dalriadians laid the foundation of a Scottish monarchy under Lorn Aengus and Fergus Mac Erch. Hence, from the third till the tenth century, Ireland was called *Scotia Major*, North Britain *Scotia Minor*. In the eleventh century, or thereabouts, Ireland returned to the native name of *Eire*. These colonists probably possessed portions of Argyle and the Western Isles. Bede says that they first settled on the northern banks of the Clyde. It is said that at this time (A.D. 506) they took with them the celebrated *Lia Fail*, or stone of destiny. It is worthy of note that the Stuarts were descendants of the colonists from this very district where we now stand, and through them that the present royal family of England laid their claim to the crown. What an extraordinary page in the romance of history—the great sovereign of a great people claiming, in the nineteenth century, the right to govern, through that right which had been won by the swords of a few Dalriadians from a remote district of the county Antrim early in the sixth century! These few particulars of the ancient history are merely mentioned here, as we shall find hereafter that a return of invaders, probably descendants of these same Dalriadians who left the shores of Ireland with Cairbre Riada, set out several centuries afterwards to settle in Eltonia, or Ulster, the land of their forefathers, and in that tract of country whence they originally sprung. This coast was peculiarly and continually exposed, not only to the predatory visits of the Scots, but also of the

Danish marauders, the sheltered coves and nooks amid the cliffs forming favourable landing and hiding-places for their armed corachs. Hence we find the shores and country studded with the remains of many strongholds, such as fortified duns, mounds, and entrenchments. These are so numerous that in two parishes alone there are no less than upwards of 200 entrenched mounds or forts. The district was subsequently held under various fortunes—such as the powerful family of the Northern Hy-Nials (from whom it received the name of Clan-Hugh-Boy, from their leader, Hugh-Boy O'Neill); the English adventurers under De Courcy, the De Burghos, the M'Keons, the powerful sept of the M'Quillans and O'Kanes, and the Scotch clans of the M'Donnells, Lords of the Isles. Amidst the varied contentions of these troubled times, when might alone was right, and the deed of the sword the only charter of possession, strongholds such as we find in Dunluce, Dunseverick, Kenbaan, Doonaniny, would naturally be erected on these northern coasts to resist the depredations of the northern pirates and the island Scots, who were continually harassing the coasts of Antrim and Derry. For example—The first raid of the Danish pirates is thus recorded:—“Age of Christ 795—the 25th year of Dunchadh—the burning of Reachrinn by plunderers—its shrines were broken and plundered.” Reachrinn was the Irish name for Rathlin. According to Macpherson, this signified Ram's promontory, or island; others, however, derive the name from Rak-ol—importing Royal island. Hence it was termed by Ptolemy, Reichinn, or King's island. In the Annals of the Four Masters (A.D. 924) “*Dun Sobhairce* was plundered by the Danes of Loch Cuan (Strangford Lough), and they slew many persons on this occasion.” And again, A.D. 1211—The M'Donnells of the Isles are mentioned as invading the coasts of Antrim and Derry. The castles which I have mentioned are built uniformly on nearly isolated precipitous cliffs, easily rendered most difficult of access, and prior to the use of artillery must have been almost impregnable. Each of these at an early date was probably the site of a fortified dun or caher—i.e., an entrenched earthen mound, or a circular uncemented stone fort; but now obliterated by the newer fortress. The present stone fortresses are most probably of the Norman period, and are not older than the date of the English invasion, 1172. The Castles of Dunluce, Dunseverick, and Kenbaan are situated near each other on the same line of coast, on bold precipitous projecting cliffs, like those of Dunnottar and Dunbar. Each

“Seems a promontory of rock,
That, compassed round with turbulent sound,
In middle-ocean meets the surging shock,
Tempest-buffeted, citadel-crowned.”

Their shattered walls, grim and bare, seem to spring out of the very cliffs and to scorn the waves that have for ages beat against their foundations. But Time, the devourer, is relentlessly at work, and each tower and keep “silently nods o'er its own decay.” Dunluce and Dunseverick were formerly strongholds of the Irish sept of the M'Quillans; subsequently of the Scotch settlers, the M'Donnells. Kenbaan of the Irish sept M'Hendrich; subsequently of the Scotch M'Alisters. But the ruins of Dunluce which now lie before us far exceed all the others in extent, interest, and picturesque beauty—its fame is almost co-equal with that of the Causeway, and it has been styled the most striking ruin perhaps in Ireland. The name, anciently written *Dunlios*, and so found in all Irish authorities, is derived from *Dun*, used adjectively for strong or fortified, and *Lios*, or *Lis*, a circular entrenchment or fort. Near the castle is, or had been, an entrenched mound. Whether the word Dunluce may mean the fortified lis or caher now obliterated by the present building, or the present structure near the Lios, we have now only slender grounds for conjecture. The era of its first erection and the name of its founder are subjects merely of tradition. It has

been assigned to an Irish chieftain, M'Keon, who built it to awe the Danes and Cruithneans, or ancient Caledonians. More probably, however, the oldest parts of the present structure, which have an early Norman type, were built by De Courcy, who pursued his conquests in Ulster as far as the Bann. By this I am not to be understood as saying there was no fortified building on the site anterior to this date. From the “Annals of the Four Masters,” it appears that the neighbouring fortress of Dunseverick—*Duin Sobhairche*, or Sovarche's fort—was erected A.M. 3501, and it is very likely that a similar structure was erected at Dunluce. The great chieftains of the north of Ireland at the time of the invasion and immediately subsequent, were the O'Neills and O'Donnells, with the O'Dohertys of Inishowen, the O'Kanes of Derry and Antrim, and the M'Quillans of Antrim. The M'Quillans were lords of the tract known as the Route of Antrim or Dalrieta, and possessed the Castles of Dunluce and Dunseverick. Cox says that Dunluce was taken from the English by Daniel M'Quillan in 1513. It was held by them until it fell into the possession of the M'Donnells. The M'Quillans, according to O'Donovan, quoting Donald M'Firbis, were descended from a Dalriadian chieftain who emigrated to Wales at an early period, some of whose posterity returned at the English invasion. He also states that the “Annals of the Four Masters,” which are full of the exploits of the *M'Uidhlians*, never speak of them as of English or foreign extraction. According to another account, the M'Quillans take their name from the M'Williams, descendants of William De Burgho, who possessed large tracts in Ulster. Be this as it may, however, the old lords of Dunluce in time found themselves gradually hemmed in and dispossessed of their territories by the Scotch adventurers, the M'Donnells, who had been settling in Antrim and Derry from the thirteenth century, until, under Sorley Boy, having obtained possession of the Glynnes, they also became masters of Dunluce. Sorley Boy—corruption of *Somhairle Buidhe*, or Yellow Charles M'Donnell—was a chief from the Hebrides, and descended from the ancient Irish race of Clan Colla, who had emigrated from Ireland to Scotland many centuries before. Many are the stories and traditions regarding the contentions between the O'Neills, the M'Quillans, and the O'Donnells under the shadows of Dunluce. “*Scires longissima rerum per tota ducta viros.*” And now the O'Neills and the M'Quillans are in obscurity; the descendants of the Scotch M'Donnells are lords of Antrim and Dunluce. In 1560, John O'Neill the Proud invited over several Highland and Island chieftains as allies in his struggle with Elizabeth's leaders, Sussex and Ormonde. After peace had been arranged O'Neill thought that these Scotchmen would depart as readily as they had come. But in this case he counted without *his guests*. The Scotch, under Sorley M'Donald, though defeated by O'Neill, held their ground, and having assisted the M'Quillans against the O'Neills, for Shane O'Neill was tyrannizing over all the Chiefs of Ulster, their former leader was entertained in Dunluce Castle. After O'Neill's subjugation, Sorley Boy was invited to winter in the castle, and while there he privately wooed and married the chieftain's daughter. Upon this alliance the M'Donnells subsequently rested their claim to the present territory. In Sydney's Report on the State of Ireland, 1575, he says—“The Glynnes of Antrim and the Route were inhabited by Scots under Sorley Boy, the country full of corn and cattle, and the Scot very haughty.” He was very haughty in his stronghold of Dunluce because Shane O'Neill had been defeated and slain. Sir J. Perrott, who succeeded Sydney in 1584, finding that the Scots were troublesome in Antrim, marched thither, and Sorley Boy having retired to Derry with a large stock of cattle, leaving a garrison in Dunluce, Sir John besieged it in person, and took it after two days' siege. The ordnance—“for other hope

* Paper read by Mr. C. W. Dugan, at Field Meeting of Derry Natural History and Philosophical Society, on 3rd ult. Published in the *Colemans Chronicle*.

he had not to win so strong a place"—consisting of two culverins and two sakers, was brought from Dublin by sea to the Skerries and Portrush, and thence drawn by men to Dunluce. After the artillery had begun to shake the castle, the contemporary account goes on to state, "Then the courages of the Ward, unused to defence of such places, began to quail, and next morning a parley is demanded"—"leave to depart with baggage and baggage is granted—to prevent such resolution as despair and a better consideration of the strength of the place might yield them, and to save the charge of re-edifying the castle, which the Deputy intended to keep for the Queen, being a place of no small importance." Perrott placed Sir Peter Cary, or Carew, in charge with a garrison of 15 soldiers. This governor, who was one of the Carews of Antrim, contrived in 1585 to discharge the English garrison, and substitute some of his own countrymen and kindred. Two of these, however, treacherously communicated with M'Donnell, and in the night-time drew up 50 of his followers into the castle. Cary made a brave defence, but was overpowered and slain with a few of his men. The redoubtable Sorley Boy was thus again master of Dunluce; but shortly after Sir J. Perrott sent Captain Merriman to besiege the place. He slew the two sons of Sorley Boy, and placed him in such straits by driving away his cattle, his only wealth (he having, according to Camden, 50,000 cows of his own), that he surrendered to Merriman, went to Dublin, and made public submission. On swearing fidelity to the Crown of England, and payment as tribute of 40 foot and 12 horsemen for 40 days in time of war, with a number of cattle and hawks annually, he was restored to the possession of four districts, with the government of Dunluce Castle. The family of the M'Donnells was subsequently ennobled by the titles of Earl of Antrim and Viscount Dunluce. In 1642 General Monroe, who was in command of the Scottish forces, visited the Earl of Antrim at Dunluce, and was most hospitably and friendly received; but at the conclusion of a banquet Monroe gave a signal to his armed followers, who seized the earl and took possession of Dunluce and his other castles. The earl was imprisoned in Carrickfergus, whence he escaped, and made his way to England. The cause of this act of treachery was the attachment of the Earl of Antrim to the King and the Duke of Ormonde, while Monroe was an adherent of the Lords Justices, and an ardent Covenant and Parliamentary. The Earl of Antrim was subsequently restored to his possessions. After this we have little to record regarding Dunluce until 1739, after Monroe's capture, when a portion of the castle with its walls and battlements gave way over the mouth of the cave during a tempestuous December night. The Duchess of Buckingham was then residing there, and Lady Margaret M'Donnell was giving a grand entertainment to all the grand families of the North—the Chiehesters, the O'Neills, the Hamiltons, the Stewarts, and the Montgomeries. You will, observing its strength and commanding position, feel that the old chieftains knew how to choose the sites for their fastnesses. The castle rock is about 100 feet above the sea level, and separated from the mainland by a deep chasm about 20 feet wide and 90 feet deep. This was crossed by a narrow bridge, one of the walls of which, 18 inches wide, still remains, and now forms the only means of entrance. It is said there were traces of another wall running parallel to this—at present these are not discernible. The faces of the rock are nearly perpendicular, and in several places form a continuous line with the masonry above. The rock, which is covered by the stronghold, is pierced by a natural cavern, penetrating completely from the sea to the land side; this cave gives a curious echo when the waters are calm. There is nothing very striking in the general architectural character of the ruins, yet they are not devoid of beauty when closely examined. The general type of the defensive portions is

Norman, with later modifications and additions of the Tudor period. A small vaulted chamber in the ruins, called Mave Roe's room, has the reputation of being haunted by the banshee of the old possessors. It is said to be swept clean nightly by her. The wind, however, which frequently rushes through the open doors and windows, aided probably by some sly touches from the old guide, are the real agents of the supposed spirit's housewifery. The foundations of rock, strong as they appear to be, are likewise yielding, with the human work above, to the voice of time. You will observe that portions of the foundations of a chamber on the north east have fallen away into the flood below, whilst the walls remains as yet attached to the main building. The piles of buildings outside the rock-fastness were used as domestic offices and barracks for the gallowlasses and clansmen. Several other buildings, the walls of which we see around us, were used for market purposes, the country people bringing in commodities for sale or as tribute for the uses of the troops and retainers. Such is an outline of the vicissitudes of this district and its stronghold of Dunluce, the ruins of which, with the many turrets, gables, and walls, in their extent resemble those of some village destroyed by fire. No sounds are heard now save that of the ceaseless surge that beats against its dark basaltic base, or the murmur of the winds through its roofless halls and caverns.

"Thou, too, Dunluce, proud throne of feudal state,
Hast bowed beneath the withering arm of fate;
For time has been when girt with martial powers
High waved thy banners o'er thy sea-girt towers;
When deep and awful rose the battle's roar,
And war's artillery shook thy trembling shore.
Wide to the storm now stand thy echoing halls,
Time saps the base of thy basaltic walls;
In ruin lies thy bridge's narrow pass,
Sunk in the fosse, and clothed with waving grass;
The sea-pink blooms upon thy turret's height,
There the lone bird of ocean sits by night;
While far beneath thy wave-washed cavern moans,
As the sad spirit of the whirlwind groans,
And fell baushes across the lonely heath,
Shriek to the blast and pour the song of death."

SANITARY PROGRESS.

It is with some degree of pleasure that we are able to chronicle the development of a healthy sanitary spirit in different parts of Ireland. There is no knowing how soon we may once more be visited with a terrible epidemic, more frightful in its ravages than any former ones, and it is well that we should be prepared to combat it, and weaken its influence if it should come. A good supply of pure water, and thorough public and personal cleanliness are all important to city, town, and village.

In respect to the sanitary condition of Dublin, much yet remains to be achieved. Many of the back streets and lanes are in a filthy condition; whether they will be kept in a more cleanly state when the scavenging is done by the Corporation, instead of by a contractor, we cannot say.

In the Lord Mayor's Court, on the 9th inst., the following case was heard:—

Mr. M'Dermott appeared to answer the complaint of Mr. Edwards, one of the inspectors of markets, for having exposed for sale at Little Green Fruit Market a quantity of gooseberries unfit for human food, contrary to the Acts 26 and 27 Vic. cap. 11, and 32 and 33 Vic., cap. 108. The inspector deposed that the berries in question were putrid, and had been destroyed by the direction of Dr. Cameron, city analyst. The case had been brought before the court in the hope that by inflicting one fine a most iniquitous system would be stopped—that of disposing of such fruit to wretched hawkers, who vend it in the alleys of the city. His Lordship said he was fully alive to the great importance of keeping a thorough supervision over the markets, more especially at the present time, but as this was the first case of the kind that had come before him, and as the defendant appeared to be a poor person, he did not care to inflict a fine. He would order him to pay 2s. 6d. costs, and hoped that no similar cases would be brought before him, else he should be compelled to inflict heavy penalties.

In Kingstown, activity is displayed by the commissioners in the matter of the health of the district.

Messrs. Masterson (chairman), Herron, Cross-thwaite, and the Town Clerk, waited upon Mr. Barton, magistrate, with reference to some observations made by him regarding the sanitary arrangements of the township. The secretary stated, on the part of the commissioners, that they had been most energetic in putting in force the provisions of the Sanitary Act, 1866. It was the only township in which a Public Health Committee had been formed, and it availed itself of the great experience of a similar committee in Dublin. £200 a year had been allocated for carrying out sanitary improvements; two sanitary officers (one a police sergeant) had been appointed; water was introduced into nearly all the courts, and many branch sewers had been constructed. All who neglected to comply with the requirements of the commissioners will be summoned, and experienced counsel had been retained to conduct each prosecution. The Public Health Committee holds a meeting every week, and has intimated to the public, by advertisements, to assist them by suggestions, and point out any sanitary defect in the township. Mr. Barton stated that he was glad to find from the responsible officer of the commissioners that the statements made by him were erroneous, congratulated the commissioners on their activity and foresight in providing so well for the sanitary requirements of the township, and added that the public should be very much gratified and obliged to the commissioners for their exertions on behalf of the town, and promised to assist in every way in his power. He also suggested the propriety of providing a fire escape.

In Drogheda, evidence is also given that the local authorities are alive to the danger of unremoved nuisances, and sanitary prosecutions are advised, and carried out.

Mr. J. J. F. Greene, borough engineer, summoned Joseph Hall, of Chester's-lane, for neglecting to cleanse, purify, and fill up a cess-pool on his premises, injurious to health, after the necessary legal notice to do so had been served on him.

Patrick Carney was sworn and proved the charge.

Defendant said there were only two loads of manure for his garden.

Mr. Mathews remarked that great apprehensions prevailed lest serious sickness might shortly visit this country. All persons who had nuisances on their premises should, therefore, be strictly compelled to abate them.

Mr. Daly—Dr. Kelly, the doctor of that district, is for ever saying the officers of the corporation won't do their duty.

Fined 5s. and costs, and ordered to abate the nuisance forthwith.

A soap and candle factory which has existed in this town from time immemorial, has been reported by the borough engineer to be a public nuisance, and the Town Commissioners have ordered same to be forthwith abated under sec. 104 of the Act.

An article in the local *Conservative* has the following:—

There are precautions to be taken by every individual and every family as well as by public bodies and departments, and to neglect them is to invite danger. We think it extremely fortunate, taking a local view of the matter, that in Drogheda the important offices of borough surveyor and nuisance inspector are no longer merely nominally filled. We hope that the Town Commissioners, laying aside all small jealousies, will unanimously support their officer in everything calculated to promote the sanitary well-being of the town.

In the town of Naas, county of Kildare, sanitary precautions are the order of the day.

The Chairman of the Town Commissioners drew attention, and said his notice had been directed to the foul and dangerous condition of one of their main sewers, which was filled with matter of the most noxious kind; and when he stated that above the stoppage the sewer in question drained twenty or thirty houses and yards, including at least three slaughter yards, they would see the necessity for immediate action. There was now no doubt that the worst forms of disease, such as typhus fever, scarlatina, and cholera, were generated and spread by the exhalations from filthy sewers. The water supply of the town was also in danger of being poisoned if the sewers were not kept free. He had been told that the sewers of Naas were constructed and maintained off the county rate, levied on the townspeople, and that the only way to get the sewers looked after would be to put in a presentment at next road sessions, and have the sam

approved of at the spring assizes of 1872. This was all very well, but he wanted to have a nuisance abated immediately which endangered the health and lives of the people of the town; and the act of Parliament which constituted the Town Commissioners certainly gave them power, as the sanitary executive of the town, to act in cases like the present for the benefit of the community. He concluded by calling on the commissioners to take some steps to have the sewer he referred to cleansed, and the impediment to the drainage promptly removed.

Mr. Cantrell said he could not find words strong enough to express himself in support of Mr. Craig's proposition, as the present sanitary state of the town, from his own personal knowledge of it, was a perfect disgrace.

Mr. Tracy was opposed to opening the sewers at the expense of the rates till a presentment was first made, and approved of by the grand jury.

Mr. Cantrell then gave notice that he would move at their next meeting that the town clerk should take immediate steps to have the main sewer in the main street cleansed, and presented for in the usual manner.

The nuisance inspector received instructions to be most particular in looking after the sanitary condition of the town.

Belfast is stirring a little in the matter of sanitary precautions, and lately she has been helping the health of the city by establishing a people's park.

Coleraine is energetically calling out on all sides for a public park and a proper cemetery. We trust that Coleraine, with other northern industrial towns, will not have to call in vain.

En passant we may remark that we are happy that the suggestion we made as to the formation of a people's park on the ground lately occupied by the Royal Agricultural Show, has been taken up, and there exists every hope the Pembroke Township will have the benefit of a public park at no distant date. We trust that the affair will not be allowed to lapse. Dublin cannot have too many lungs. Without pure air there cannot be health; and our city in the future will require all the open spaces that she can obtain.

BOOKS RECEIVED.

Lisdoonvarna Spas and Sea Side Places of Clare. By E. D. Mapother, M.D. Dublin: Fannin and Co. London: Longman and Co. 1871.

THIS is a very interesting little brochure, and one that deserves not only perusal but attention. The fame of the mineral waters or spas of Ireland is of old date. Those of Leixlip, Lucan, the Phoenix Park, Swanlinbar, and Ballyspellan, attracted thousands of visitors in their day, but their day had almost passed before the birth of the present century. Swift, we believe, celebrated the fame of the last-named waters by some humorous lines, and Tickel, Addison, Parnel, Delany, and Dunkin, poets, parsons, and doctors, added their quota to the praises of these once famous spas. The curative qualities of these waters were attested and acknowledged, and analyses of their properties were made by some well-known physicians, whose name and fame survive in our own time. It is somewhat strange that Ireland, which once boasted of so many of these spas, has been unable almost, except in a rare instance, to retain their use. Germany has been for many years developing a large traffic in mineral waters, while those of Great Britain and Ireland are being disused. Bath, Leamington, Tunbridge Wells, Malvern, and many other places in England, had for a long period been celebrated as places where nature and art were blended in the production of artificial waters, for fashion in these places was not contented with nature's supply. Druncondra, Dublin, also gave birth, in 1819, to an artificial spa, the grounds of Clonturk House being the scene of a speculative Frenchman's labours. Here poor Duval ambitioned to rival London by creating a second Vauxhall. Old nails, iron filings, horse-shoes, and chemicals were compounded

together, and the result was what might have been expected. There was a pungency in the taste, and a certain potency in the spell, while the fashion of the period supported the illusion.

As it is our intention in next issue to make a very close acquaintance with Dr. Mapother's work, we will defer till then what we have to say on mineral waters in general, and the benefit to be derived from drinking them. The information afforded by the little book will be found reliable. The opinions expressed are, we believe, thoroughly sound. To the health hunter—be he a city merchant, college student, tourist, or a mere invalid—this small volume will be a most useful accompaniment in his journey through this island, for its interest is not confined to the "Sea Side Places of Clare." It says much in small compass, and the advice as well as the information it tenders, will be found most acceptable to many.

The Workman's Manual of Engineering Drawing. By John Maxton, Engineer, &c. London: Lockwood and Co.

THIS very useful and well got-up manual of engineering drawing will be noticed in our next issue.

SHOP FRONT ARCHITECTURE IN DUBLIN.

MESSRS. KERR'S ESTABLISHMENT.

WE give in our present issue an engraving of the front elevation of Messrs. Kerr's new establishment in Capel-street. The structure externally presents a good block of building artistically rendered, and adds a new feature to this historic street on the northern side of our river. As we intend in a future issue to enter into particulars of the inner departments of the establishment (which are still in a very incomplete state), we will reserve all architectural data, and confine our remarks to instancing the persevering public spirit manifested by the proprietors in the development of important branches of native industries, and in the utilization of home labour. In one branch alone—that of Belleek pottery—the Messrs. Kerr have already achieved wonders. In perfect manipulation of modelling, glazing, and finish, nothing can be more chaste than the numerous articles of ware of the Belleek type turned out by this establishment. We understand that further improvements are in contemplation in this branch as soon as the necessary arrangements are completed. During the visit of the Royal party to Dublin special visits were made by the Princes, and the Princess Louise and Marquis of Lorne to the Messrs. Kerr's, and the Royal party expressed their wonder and the pleasure they felt at witnessing the marvellous display of fancy ware on view. We believe that we are correct in stating that large orders were given by members of the Royal family for several articles. Some most beautiful specimens of vases ornamented with ideal pictures, illustrative of a variety of incidents in the fields of poetry, romance, chivalry, &c., excited the admiration of the Royal party. Among these were a pair of vases, which, on a former occasion in Dublin, received the special praise of Her Majesty and Prince Albert. Here may be seen a model, a perfect imitation in all details of a service presented to his late Majesty William IV., decorated in the centre with the royal arms, with medallion pictures emblazoned on the border, illustrative of the several orders of knighthood. A fac-simile of a service presented to the Queen in 1861, is also on view,

embellished with all the royal appendages. Vases may be inspected from prices varying from one hundred to five hundred guineas the pair and upward. In the six departments through which the royal party were conducted, a varied assortment of most superb articles of manufacture are to be observed. On side tables, the ware of Colebrooke Dale, French china, and that of the celebrated firm of Minton's, are displayed, endless in the variety of form, and each possessing a distinctive charm. In viewing these articles, the fancy is struck with the subtlety of mind and the cunning of artistic handicraft that is shown. A casual look alone will convince the visitors that progress in the world of art is moving apace with rapid strides, and that even in the City of Dublin a cultivated taste is not only perceptible, but exists, and is fastly developing. As we have already said in the beginning of our notice, we purpose, on another occasion, entering more fully into details, we will take leave of our subject by complimenting the Messrs. Kerr on the success they have achieved, and we can confidently augur from their acknowledged enterprise certain celebrity and wealth, both of which they very well merit.

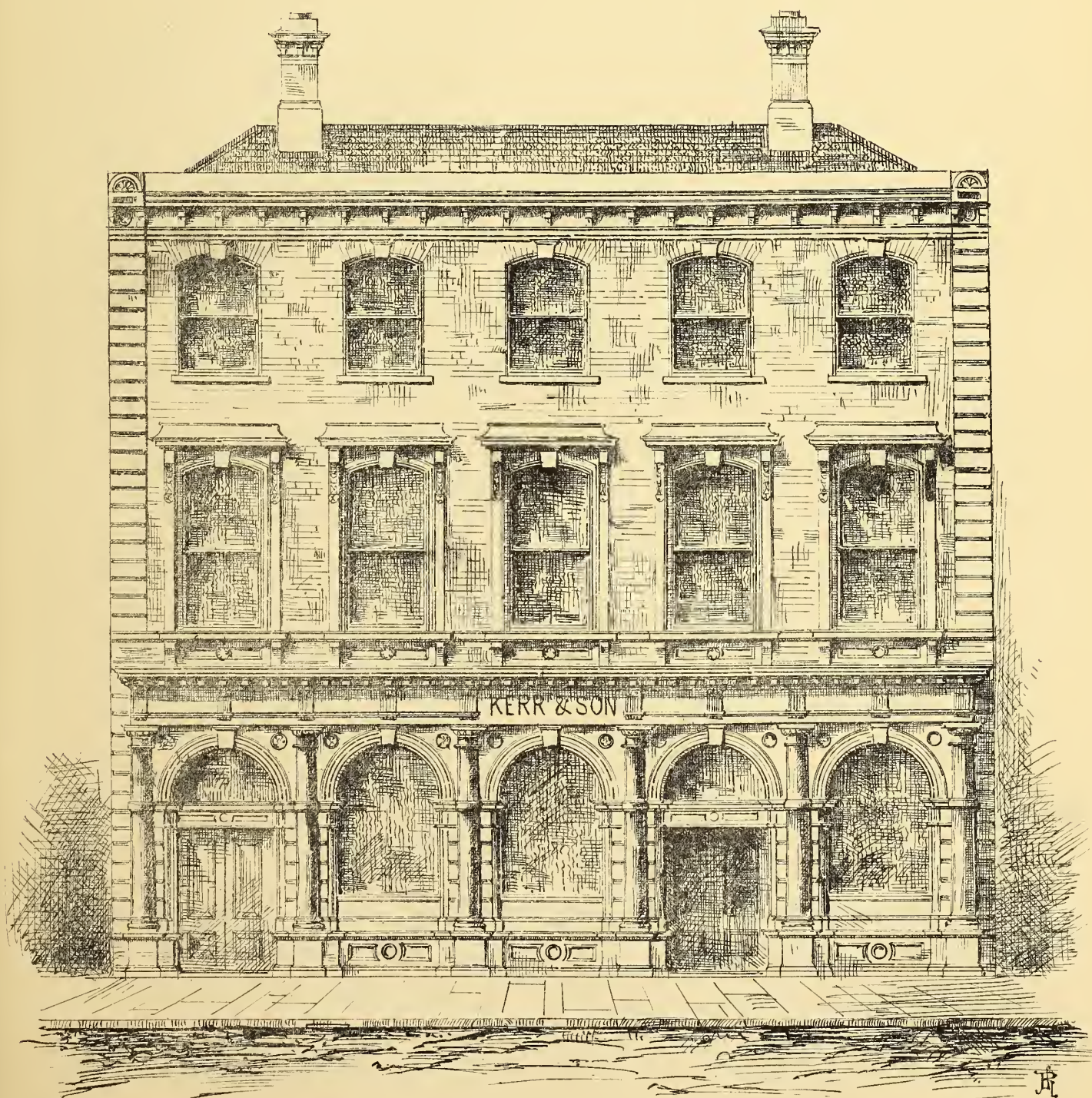
The entire works are to be carried out according to plans by Mr. John McCurdy, Leinster-street.

THOMAS COOLEY, ARCHITECT.

IN respect to the queries put in the last issues of the IRISH BUILDER anent the above Irish architect, we have been called upon by Mr. Thomas Cooley, an artist in this city, and grandson to the above celebrated architect. We are informed that there are many architectural drawings of the architect of the Royal Exchange (City Hall) and a portion of the Four Courts in existence still, and are available for the purpose of identity. The author of the proposed *Lives of the Irish Architects* will, no doubt, be glad to hear of this, and we will have great pleasure in announcing any fuller particulars relative to Thomas Cooley's practice in Dublin when we are furnished with the same. Of the other Irish architects mentioned we trust that some more information will be forthcoming in due time.

THE "BUILDING NEWS" AND THE "IRISH BUILDER."

OUR contemporary the *Building News* has thought it necessary, in its issue of the 4th instant, to publish what may, perhaps, be a mythical letter, charging the IRISH BUILDER with transferring to its columns an article without acknowledgment. We could pass by the sneer indulged in in this insolent letter as unworthy of notice had it not been supplemented with an editorial note, backing up their reputed correspondent in his charges. The *Building News* is perfectly justified in reminding its contemporaries of their inadvertence, and we honestly assert that it was such on our part, and the fact that this inadvertence might be charged to us on a former occasion is no proof that we are in the habit of appropriating the material of other journals without acknowledgment. We think our contemporary the *Building News* is not in the position of throwing the first stone at its brother labourers in the building world, and we will civilly remind our petulant contemporary that we can bring home to its doors numerous cases of appropriations in its chequered career. We are happily in a position of making good our words, and if our contemporary likes to accept the challenge we fling down the gauntlet at once, and will not stumble over the performance. Some



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journals there are who live by begging, borrowing, and stealing, not alone from the pages of other journals, but from the brains of writers, and we have known one or two of them in London who scrupled not to use the manuscript of "poor devils," informing the said poor devils that the charm of seeing themselves in print ought to be sufficient compensation for their labour. The IRISH BUILDER has been in existence for nearly twelve years, and we think very few in the building world are oblivious of its career, but gratuitous insults are common in certain literary circles, and some there are who cannot approach you without insulting. Narrow-minded people, said our great countryman Swift, are like narrow-necked bottles, the less they have in them the more noise it makes in coming out. This remark holds good in respect to more than one of our contemporaries on the other side of the channel. The *English Mechanic* being part and parcel of one establishment, it is not necessary for us to bandy compliments with it, singly or under its various incorporations. It would conduce much to the respectability of the professional journals of London if they would imitate the conduct of our respected contemporary the *Builder*; but dishonest rivals, who lack ability themselves, can only travestie, and even in the performance of this work they miserably fail. Whatever the faults of the IRISH BUILDER may be, it has never yet levied any system of black mail for the purpose of increasing its circulation, nor has it resorted to the unprincipled practice of fleecing small manufacturers or poor patentees. It is with pain we are forced to notice the conduct of our contemporary, but in justice to ourselves and our constituency we could not pass over the matter in silence. Wilful thieving deserves punishment if it can be brought home to the reputed thief, but wilful lying is more reprehensible. We take leave of our contemporary for the present, hoping that he will exercise a little more caution in future. When he ever finds us at fault again through forgetfulness on the part of our staff, we will take no umbrage at being reminded. All we expect is gentlemanly usage, common journalistic courtesy, and not the ambition of a spirit more congenial to the atmosphere of the shamble than to the sanctum of a respectable English journalist.

MORE STATUES.

WITH the O'Connell Monument, the Prince Albert Statue, the Grattan Statue, the Memorial to Lord Rosse, and several other private and public commissions abroad, Mr. Foley has received a fresh order during his visit to this country, to commence a statue of the late Lord Dunkellin, Galway. There may be too many irons in the fire, and genius may be overworked in London, while it is overlooked in Dublin at the same moment. It is not unreasonable for the public to expect that a little more consideration should be shown to our resident artists by public bodies, who acquire public moneys here, but who think they cannot send it out of the country fast enough. A change is required.

VILLAGE HOSPITALS.

ON the subject of village hospitals, Dr. Davis, of Manorhamilton, makes some sensible observations in a morning contemporary. He says:—

"The chief advantages of the establishment of village hospitals seem to be—first, the certainty that the sick and suffering poor will gladly avail themselves of their benefits; and, secondly, that the medical officers of the dispensaries can treat more successfully cases of serious accidents and disease. With long experience as medical officer of workhouse hospital, I can safely say that anxiety to get home to their own little cabins, away from the suffering and dying around them, has induced many patients, at too early a period, to leave the large hospital, where they were gradually convalescing. This objection they will not have to a village hospital near their own home, with familiar

faces about them, in a small house, to which their friends can have ready access. With the sympathy of neighbours, rich and poor, sickness will be more supportable, and their chances of recovery greater than in a large institution, for, as a rule, patients suffering from serious medical and surgical diseases do better separately than congregated in large wards. This is to be attributed to purer air and less excitement. . . . What is required in remote dispensary districts is an unpretending cottage, capable of accommodating four or five patients, with a motherly sort of woman as nurse, who will obey orders punctually. With these the medical officers will be able to discharge their duties more advantageously to the sick poor; and, I venture to say, with them the question of increased remuneration of such duties will be a secondary consideration until the time comes when funds in aid of village hospitals can be obtained from moneys originally intended for religious purposes. . . . Irish medical men know their business well, and many a case is treated successfully in a cabin that would reflect credit on an Adams or a Corrigan. They only require more facilities for performing operations, and for increasing their experience and keeping up their skill. In my humble opinion, cases of contagious disease should not be admitted into village hospitals—the union fever hospitals are the proper places for them—and their reception into such homely institutions as the contemplated village hospitals would create a prejudice against them. Why should not an effort at once be made by members of Parliament and Poor Law guardians to obtain the advance on the security of surplus funds of the Irish Church hinted at by the Poor Law Commissioners?"

More attention than has hitherto been given is required in the direction indicated by Dr. Davis. It is a matter of vital importance to poor and rich.

OBITUARY.

MR. MICHAEL DUNNE, BUILDER, AMIENS-STREET.

IT is with a sincere regret we have to record in our present issue the death of a worthy citizen, who, for the last forty years, was a well-known and respected member of the building profession. He had been only a few days ailing before his decease, which took place at his residence, Amiens-street, on Thursday morning, the 10th instant. By sheer perseverance and industry he raised himself up from an humble station—thus showing an example to the younger aspirants in his line. He was scrupulously exact in all his dealings, honourable in his engagements, and both in the character of an employer, citizen, or neighbour, earned the respect of all within the circle of his acquaintance. The deceased was in the 67th year of his age.

THE BRITISH ASSOCIATION AT EDINBURGH.

THE annual meeting of this body has been held in Edinburgh. The inaugural address was delivered by Sir Wm. Thomson, LL.D., F.R.S., in the Music Hall, before a brilliant assemblage, the Emperor of Brazil occupying a chair on the president's right hand. Having sketched the early history and progress of the association, noted the losses it had sustained by the death of several great men, and made some few remarks upon Kew Observatory, he proceeded as follows:—

The physical laboratories which have grown up in the Universities of Glasgow and Edinburgh, and in Owens College, Manchester, show the want felt of colleges of research; but they go but infinitesimally towards supplying it, being absolutely destitute of means, material or personal, for advancing science except at the expense of volunteers, or securing that volunteers shall be found to continue even such little work as at present is carried on. The whole of Andrews' splendid work in Queen's College, Belfast, has been done under great difficulties and disadvantages, and at great personal sacrifices; and up to the present time there is not a student's physical laboratory in any one of the Queen's Colleges in Ireland—a

want which surely ought not to remain unsupplied. Each of these institutions (the four Scotch Universities, the three Queen's Colleges, and Owens College, Manchester) requires two professors of Natural Philosophy—one who shall be responsible for the teaching, the other for the advancement of science by experiments. The University of Oxford has already established a physical laboratory. The munificence of its Chancellor is about to supply the University of Cambridge with a splendid laboratory, to be constructed under the eye of Professor Clerk Maxwell. In mentioning recent advances in several branches of science, he took occasion to observe that accurate and minute measurement seems to the non-scientific imagination a less lofty and dignified work than looking for something new. But nearly all the grand discoveries of science have been but the rewards of accurate measurement and patient, long-continued labour in the minute sifting of numerical results. The popular idea of Newton's grandest discovery is that the theory of gravitation flashed into his mind, and so the discovery was made. It was by a long train of mathematical calculation, founded on results accumulated through prodigious toil of practical astronomers, that Newton first demonstrated the forces urging the planets towards the sun, determined the magnitude of those forces, and discovered that a force following the same law of variation with distance urges the moon towards the earth. Among other illustrations of this remark, he noticed Andrews' discovery of the continuity between the gaseous and liquid states, which he said was worked out by many years of laborious and minute measurement of phenomena scarcely sensible to the naked eye. Great service has been done to science by the British Association in promoting accurate measurement in various subjects. After a comprehensive review of science in every department, the President continued:—The essence of science is as well illustrated by astronomy and cosmical physics, consists in inferring antecedent conditions, and anticipating future evolutions, from phenomena which have actually come under observation. In biology the difficulties of successfully acting up to this ideal are prodigious. The earnest naturalists of the present day are, however, not appalled or paralysed by them, and are struggling boldly and laboriously to pass out of the mere "natural history stage" of their study, and bring zoology within the range of natural philosophy. A very ancient speculation, still clung to by many naturalists (so much so that I have a choice of modern terms to quote in expressing it) supposes that under meteorological conditions very different from the present, dead matter may have run together or crystallised or fermented into "germs of life," or "organic cells," or protoplasm." But science brings a vast mass of inductive evidence against this hypothesis of spontaneous generation, as you have heard from my predecessor in the presidential chair. Careful enough scrutiny has, in every case up to the present day, discovered life as antecedent to life. Dead matter cannot become living without coming under the influence of matter previously alive. This seems to me as sure a teaching of science as the law of gravitation. How then did life originate on the earth? Tracing the physical history of the earth backwards, on strict dynamical principles, we are brought to a red-hot melted globe on which no life could exist. Hence when the earth was first fit for life, there was no living thing on it. There were rocks solid and disintegrated, water, air all round, warmed and illumined by a brilliant sun, ready to become a garden. Did grass and trees and flowers spring into existence, in all the fulness of ripe beauty, by a fiat of creative power? or did vegetation, growing up from seed sown, spread and multiply over the whole earth? Science is bound, by the everlasting law of honour, to face fearlessly every problem which can fairly be presented to it. If a probable solution, consistent with the ordinary course

of nature, can be found, we must not invoke an abnormal act of creative power. When a lava stream flows down the sides of Vesuvius or Etna it quickly cools and becomes solid; and after a few weeks or years it teems with vegetable and animal life, which, for it, was originated by the transport of seed and ova, and by the migration of individual living creatures. When a volcanic island springs up from the sea, and after a few years is found clothed with vegetation, we do not hesitate to assume that seed has been wafted to it through the air, or floated to it on rafts. Is it not possible, and if possible, is it not probable, that the beginning of vegetable life on the earth is to be similarly explained? Every year, thousands, probably millions, of fragments of solid matter fall upon the earth—whence come these fragments? What is the previous history of any one of them? Was it created in the beginning of time an amorphous mass? This idea is so unacceptable that, tacitly or explicitly, all men discard it. It is often assumed that all, and it is certain that some, meteoric stones are fragments which had been broken off from greater masses and launched free into space. It is as sure that collisions must occur between great masses moving through space as it is that ships, steered without intelligence directed to prevent collision, could not cross and re-cross the Atlantic for thousands of years with immunity from collisions. When two great masses come into collision in space it is certain that a large part of each is melted; but it seems also quite certain that in many cases a large quantity of *debris* must be shot forth in all directions, much of which may have experienced no greater violence than individual pieces of rock experience in a land-slip, or in blasting by gunpowder. Should the time when this earth comes into collision with another body, comparable in dimensions to itself, be when it is still clothed as at present with vegetation, many great and small fragments carrying seed and living plants and animals would undoubtedly be scattered through space. Hence, and because we all confidently believe that there are at present, and have been from time immemorial, many worlds of life besides our own, we must record it as probable in the highest degree that there are countless seed-bearing meteoric stones moving about through space. If at the present instant no life existed upon this earth, no such stone falling upon it might, by what we blindly call natural causes, lead to its becoming covered with vegetation. I am fully conscious of the many scientific objections, which may be urged against this hypothesis, but I believe them to be all answerable. I have already taxed your patience too severely to allow me to think of discussing any of them on the present occasion. The hypothesis that life originated on this earth through moss-grown fragments from the ruins of another world may seem wild and visionary; all I maintain is that it is not unscientific. From the earth stocked with such vegetation as it could receive meteorically, to the earth teeming with all the endless variety of plants and animals which now inhabit it, the step is prodigious; yet according to the doctrine of continuity, most ably laid before the association by a predecessor in this chair (Mr. Grove), all creatures now living on earth have proceeded by orderly evolution from some such origin. Darwin concludes his great work on "The Origin of Species" with the following words—"It is interesting to contemplate an entangled bank clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately-constructed forms, so different from each other and dependent on each other in so complex a manner, have all been produced by laws acting around us."

"There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of

gravity from so simple a beginning, endless forms, most beautiful and most wonderful, have been and are being involved." With the feeling expressed in these two sentences I most cordially sympathise. I have omitted two sentences which come between them, describing briefly the hypothesis of "the origin of species by natural selection," because I have always felt that this hypothesis does not contain the true theory of evolution, if evolution there has been in biology. Sir John Herschel, in expressing a favourable judgment on the hypothesis of zoological evolution, with, however, some reservation in respect to the origin of man, objected to the doctrine of natural selection, that it was too like the Laputan method of making books, and that it did not sufficiently take into account a continually guiding and controlling intelligence. This seems to me a most valuable and instructive criticism. I feel profoundly convinced that the argument of design has been greatly too much lost sight of in recent zoological speculations. Reaction against the frivolities of teleology, such as are to be found, not rarely, in the notes of the learned commentators on Paley's "Natural Theology," has, I believe, had a temporary effect in turning attention from the solid and irrefragable argument so well put forward in that excellent old book. But overpoweringly strong proofs of intelligent and benevolent design lie all around us, and if ever perplexities, whether metaphysical or scientific, turn us away from them for a time, they come back upon us with irresistible force, showing to us through nature the influence of a free will, and teaching us that all living beings depend on one ever-acting Creator and Ruler.

In Section G.—"Mechanical Science"—the President (Prof. F. Jenkin) delivered an address, which we print below:—

It was the business of those who held such chairs as that occupied by him to point out the connexion between pure science and practice, and to show how mathematics are employed in mensuration and in mechanical calculations,—to show how the truths of physics are made use of in designing economical machinery. The student who has once grasped the fact that there is a real connexion between practice and theory will seldom be at a loss how to find or search for that connexion in after life. The student thus prepared, knows what he has to learn from practice, and need not lose precious time in blundering over the numberless scientific problems which practice is sure to suggest, but can never solve. The education of the architect, the practical chemist, the manufacturer, and the merchant, must be similar, *mutatis mutandis*, with that of the engineer. Assuming, then, that the education of those who are to follow, more or less, scientific pursuits must consist in acquiring, first, that theoretical knowledge which practice cannot give; and, secondly, the practical knowledge which schools should not attempt to give,—there remains the question whether the theoretical preparation should be given in special colleges or in universities such as our own. He had no hesitation in preferring the university. Mathematics, physics, chemistry, geology, botany, languages, all form elements required in various combinations in the education of all students. There is but one kind of mathematics, one kind of pure physics, and so forth. Surely it is better to teach the men belonging to different professions side by side so long as the matter taught is to be the same. Segregation at an early age is apt to foster professional peculiarities and narrow-mindedness. There is great danger, if physics are to be taught specially to engineers, that a special kind of physics, erroneously supposed to be specially useful to them, will be invented. Lastly, the contact of students and professors of one faculty with the students and professors of other faculties is very beneficial to all. Do not, therefore, cripple old universities by

withdrawing from them a portion of their students and their professors to set up special professional or technical colleges of a novel kind, but rather add by degrees to the power and usefulness of old institutions, and found new colleges and universities, after the model of those which are found to have done good work. As an example of what may be safely done, he (the President) considered that in Edinburgh there was required a Chair of Architecture and lectureships on navigation and on telegraphy. There is, further, much want of a teacher of mechanical drawing. The professors of physics and chemistry require additional accommodation for practical laboratories, and additional assistance. If these additions were made, the Edinburgh College would, in his opinion, meet all the requirements for superior technical education in this part of Scotland. For £2,000 per annum all these additions might be made. Notwithstanding the acknowledged importance of education, establishments for giving the higher kinds of instruction are never self-supporting, and students must everywhere be bribed to come and learn. Immediate prizes, in the form of bursaries, scholarships, and fellowships, are required to induce men to cultivate the older fields of learning, and similar bribes are needed to promote the tillage of the more recently colonized domains of applied science. The Whitworth scholarships are a noble example of munificence thus directed, although, in his (the President's) opinion, the examination requires considerable reform. Local ambition is most effectually stirred by local prizes, and he regretted to find a certain apathy among students here with respect to the Whitworth competition. This appears to arise partly from dissatisfaction with the mode of examination, and partly from the fact that the examiners are men not well known in Scotland. Leaving the question of technical training for the upper classes, and the still larger question of scientific teaching in second grade schools, the consideration of which would lead too far a-field, he proceeded to say a few words on the technical education of the skilled artisan. This must be treated on the same principles as have been applied to professional teaching. We must endeavour to prepare the lad in school by teaching him those things which he cannot learn in workshops, but which will enable him to work with greater intelligence while acquiring and applying his practical knowledge. He (the President) would not then speak of that general education which should make him a good man, and which should open to him those great sources of rational enjoyment arising from culture; he would restrict his observations entirely to his preparation for becoming an efficient workman. He (the President) had in many places said, and he could not say it too often, that the great want of the workman is a knowledge of mechanical drawing. Unfortunately, he could obtain little attention from the general public to this demand for the workman. Very few persons, not being engineers, know at all what mechanical drawing is; and he was sorry to say that some examiners in high places, who direct the education of the country, know very little more than the general public, and teachers who should give bread give chaff. He (the President) had lived much abroad, and come into close contact with both English and foreign workmen, and he unhesitatingly said that the chief, if not the only inferiority of Englishmen has been in this one branch of knowledge. He would explain to some of his hearers what mechanical drawing is. It is the art of representing any object so accurately that a skilled workman, upon inspecting the drawing, shall be able to make the object of exactly the materials and dimensions shown, without any further verbal or written instruction from the designer. The objects represented may be machines, implements, buildings, utensils, or ornaments. They may be constructed of every material. The drawings may be linear, shaded and

coloured, or plain. They must necessarily be drawn to scale, but various geometrical methods may be employed. The name of mechanical drawing is given to one and all those representations the object of which is to enable the thing drawn to be made by a workman. Artistic drawing aims at representing agreeably something already in existence, or which might exist, and for the sake of the representation; mechanical drawing aims at representing the object, not for the sake of the representation, but in order to facilitate the production of the thing represented. Now, it is this latter kind of drawing which is so vastly important to our artisans, and hence to our whole wealth-producing population. Very few workmen, or men of any class, can hope to acquire such excellence in artistic drawing that their productions will give pleasure to themselves and others; but a great number of workmen must acquire some knowledge of the drawings of those things which they produce, and there is not one skilled workman or woman who would not be better qualified by a knowledge of mechanical drawing to do his work with ease to himself and benefit to the public. Mechanical drawing is a rudimentary acquirement of the nature of reading, writing, and arithmetic. In order that a man may understand the illustrated description of a machine he must understand this kind of drawing. To the general public an engineering drawing is as unintelligible as a printed book is to a man who cannot read. The general public can no more put their ideas into such a shape that workmen can carry them out, than a person ignorant of writing can convey their meaning on paper. Reading and writing on mechanical or industrial subjects is impossible without some knowledge of the art he (the President) was pressing on the attention of the section. This art is taught abroad in every industrial school; a great part of the school time is given up to it. In a Prussian industrial school one-third of the whole time is given to it. A French Commission on Technical Education reported that drawing, with all its applications to the different industrial arts, should be considered as the principal means to be employed in technical education. Now, he (President) deliberately stated that this subject is not taught at all in England, and that the ignorance of it is so great that he could obtain no attention to his complaints. A hundred times more money is spent by Government to encourage artistic drawing than is given to encourage mechanical drawing, and he (the President) said that mechanical drawing is a hundred times more important to us as a nation. Moreover, the little *quasi*-mechanical drawing which is taught is mostly mere geometrical projection, a subject of which real draughtsmen very frequently, and with little loss to themselves, are profoundly ignorant. Descriptive geometry and geometrical projection are nearly useless branches of the art, and the little encouragement which is given is almost monopolised by these. Mechanical drawing proper is confined to those who pick it up by practice in engineering offices. These draughtsmen are often excellent; and on their behalf he claimed no other teaching. He spoke for the artisan who makes and for him who uses machinery. There are two ways in which our shortcomings may be remedied:—First, the schools of art now established in this country should be enlarged so as to teach real mechanical drawing, and the examinations conducted by the Science and Art Department should be greatly modified; secondly, the drawing which is to be taught in the schools under the superintendence of the new school-boards may be and ought to be mechanical drawing. Free-hand drawing, as a branch of primary education, would, he feared, be a useless past-time; but whether that be so or not, he was certain that the accurate and neat representation of the elementary parts of machinery and buildings would be popular with the pupils, and could be effectively taught. This kind of drawing educates hand and mind

in accuracy, it teaches the students the elements of mensuration and geometry, and it affords considerable scope for taste where taste exists. The chief difficulty would be to obtain competent teachers. It would occupy too long a time on the present occasion to attempt to show how these must themselves be trained. His chief aim that day had been to claim attention for a most important and wholly neglected branch of education. He should probably be expected to urge the teaching of other natural sciences in our primary schools; nothing, indeed, would give him greater pleasure than to think this could be done. He confessed he doubted it; and while our second grade schools are what they are in this respect, and while the Cambridge examination for a degree in applied science is what it is, he dared not think of natural science classes in our primary schools. He should be delighted if he was mistaken, but he was certain that mechanical drawing deserved our just attention, as most immediately useful to the artisan, and most easily taught. The very books on natural science which are published in England cannot be properly illustrated for want of competent draughtsmen; and children would be unable to follow the illustrations and diagrams if ignorant of the principles on which they are constructed.

THE O'CONNELL TESTIMONIAL COMMITTEE AND MR. FOLEY.

At a meeting held in the City Hall on the 8th inst., Mr. Foley attended, by request, to furnish a statement of the progress of the work in which he is engaged. Several interrogatories were put to the artist by members of the committee as to what particular time Mr. Foley would be able to say that the monument would be completed. Through the illness of the sculptor, the work has been delayed, but a public uneasiness was otherwise felt by many, resulting in an openly expressed opinion, that the monument might never be completed during Mr. Foley's lifetime. The sculptor is proceeding with his work; but he cannot brook to be hurried, as it is his intention, to use his own words, to make it "the principal work of his life." The following is a summary of Mr. Foley's statement to the committee:—

"The portion of the monument I have most advanced in is the central shaft of the pedestal. The full-length figures around the pedestal are sixteen in number. Eleven of these are now in progress—some of them nearly finished. The heads of the four winged Victories at the four angles are nearly completed; and I have also in progress the full-sized head of the figure of O'Connell. The public, I fear, expect that the work could be executed in a shorter time than that in which human hands could accomplish it. A year is considered a short space of time in which to produce a single figure. If I required a year for the production of each figure in the O'Connell monument, I should require twenty-one years for the completion of the work. In less than a third of that time I hope to have it finished, so as to be acceptable to the country, both as a monument to O'Connell and as a work of art. On my part there shall be no loss of time; the work shall be completed at as early a period as possible. The public are by this time aware of my lengthened illness. It is nearly nine months since I was able to attend to my professional duties. I may add that I do not think the public are aware of the size of the O'Connell monument. Its height will be about forty-two feet, the figure of O'Connell will be twelve feet in height, and the four Victories ten feet each. The central figure of Erin is eight feet, and the other figures around the circle are seven feet each in height. I am deeply interested in the subject, and I intend it shall be the principal work of my life."

Accepting the above explanation of Mr. Foley, we are inclined to make some allowance for lost time, trusting, at the same time, that the citizens of Dublin will witness the erection of the monument in Sackville-street within the next three years. A longer delay, we are of opinion, will result in unpleasantness. The monument will be a large one,

and one requiring much manipulation of hand, a fact the majority of the public seem hardly to be aware of; nevertheless, time sufficient has now been granted to complete it with satisfaction to the artist and the country. Disappointment in the future is, we hope, obviated.

PRESERVATION OF IRISH NATIONAL MONUMENTS.

(From the *Kilkenny Moderator*.)

A PARAGRAPH lately went the rounds of the Press, to the effect that "a committee of Catholic and Protestant gentlemen" was formed to make arrangements with the Church Temporalities Commissioners for vesting the world-famous ruins on the Rock of Cashel in the Roman Catholic archbishop, for the purpose of being re-edified as his cathedral. Whether this statement was correct or not, so far as the formation of the "committee," we cannot say, but it would seem at least that the object of the arrangement is not to be carried out. We find the following statement in the *Cashel Gazette*:

"An official letter has been addressed to the Dean of Cashel, by the secretary of the Church Temporalities Commissioners, announcing that they have decided to vest the ruins upon the Rock of Cashel in the secretary of the Board of Public Works as a national monument."

To this announcement the *Gazette* appends the following commentary:

"This arrangement, which is only carrying out the intention of the Irish Church Act, will provide for the preservation of these invaluable ruins from further decay, as funds will be given to the Board of Works for the purpose, without giving any ground for offence to any denomination of Christians. We are glad that the question of the ultimate destination of these ruins has been finally set at rest, and that the Commissioners have resolved not to deviate from the plain meaning of the Act which they are bound to carry out."

There can be no room for doubt that any attempt, by any religious community, to remodel the venerable architectural ruins on the Rock of Cashel so as to make them suitable to the purposes of modern worship, must prove but an outrageous distortion and disfigurement. So far, then, we fully sympathise in our contemporary's expression of gratification at learning that the grand old building is saved from being made a bone of contention to be won after a struggle by "any denomination of Christians." But we are by no means sure that we can go any further with the *Gazette*. Of course there are very many other ancient buildings, the custody of which, under the operation of the Irish Church Act will come to be similarly vested for the future in the Board of Works. No doubt the Board of Works will have ample funds "for the preservation of those invaluable ruins from further decay;" but will the funds be judiciously applied? Alas! we have our apprehensions. "Board of Works jobs" are anything but proverbial for the taste or discrimination evinced in their design or execution. Are our ancient buildings to be subjected to the normal Board of Works routine? Heaven forbid!—if they are, they might as well be handed over at once to the tender mercies of any "committee of gentlemen," whether "Catholic," "Protestant," or "mixed-middling." To safely guard those monuments for posterity, there should be associated with the Board of Works at least a properly qualified superintendent, or inspector, or controller—call him what you will, so that he will be the right man in the right place—of national monuments; not a mere Board of Works architect, or a Board of Works engineer such as we have hitherto had experience of, but a man who, whilst possessing a proper architectural knowledge, is a genuine Irish archaeologist in whom the nation could put the fullest trust. Without such a provision as this being made, we can only pray—and most fervently we do so—Heaven preserve our National Monuments from the preservation of the Board of Works!

A SOUTH AMERICAN POULTRY FARM.

G. F. PEARCE, Esq., of Freetown, Mass., contributes the following interesting article to the "People's Practical Poultry Book," recently published by D. D. T. Moore, New York:—

I propose to describe a poultry farm, where fowls are kept by the thousand, whose proprietor counts his gains therefrom proportionately. It is situated in the southern extremity of Chili, South America, where the rainy season, of six months' duration, is as detrimental to the well-being of all fowl kind as the rigours of our own winters, and where great care and skill is very essential to satisfactory results.

Senor Don San Fuentes commenced his operations in poultry with a stock of two hundred hens and eight cocks, to which he has added thereto, by natural increase from year to year, until now he has somewhere in the vicinity of six thousand. Their range is unlimited, as his farm covers three thousand cuadradas, equal to 7,500 acres. To every fifty hens and two cocks is given a house of their own, of which there are six or seven hundred on the place. These are placed 200 ft. apart, each way, thus isolating one lot from the other.

These houses are very cheap affairs, and are made by erecting two forked posts 8 ft. long, and distant from each other 15 ft. On these rests the ridge-pole. On both sides of the centre post, 10 ft. distant, a trench is dug, 1 ft. in depth. Then small poles are placed for rafters, one end in the trench and the other tied to the ridge-pole, 2 ft. apart; then another set of poles tied crossways, also 2 ft. equi-distant, and the framework is complete. This is covered over with thatch, which is found in plentiful abundance, and to be had for the cutting. The only framework about the house is the doors at the ends, both of which are four by six, and contain each a window, pivoted in the centre of the sash, to be opened or shut as the requirements of ventilation demand. Each house has its complement of twenty boxes for laying, placed under the eaves, and partly concealed by bundles of straw.

Near the family residence is a large building, devoted to the storing of grain and eggs; nursery for sick hens; a long room for hatching, and another for slaughtering purposes. In the sick room is arranged a series of boxes, each one large enough for the comfort and convenience of its solitary occupant, who is there placed, and treated for its malady with as much care as if its value was dollars instead of cents, and with such skill that the ratio of deaths has been 1 in 280.

The sitting department is also provided with boxes, some three hundred in number. Here all are brought from their respective coops as soon as their incubating propensity shows itself, and placed upon their quota of eggs. Feed, water, and a large supply of sand and ashes, are provided, and the sitting hen not allowed to leave the room until she takes her young brood with her.

The clutches are then "doubled up"—that is, two broods to one hen, and the chickenless one sent back to her coop to resume her egg laying. As soon as the young chicks are discarded by their mother they are taken to their future home, fifty in each lot, and the old ones back to their respective localities.

The fowls are fed three times per day, and their diet so arranged as to always present a variety, although oats is their staple article of food, and always before them in unlimited quantity. To-day it will be Indian meal, made into a stiff dough, and given hot; to-morrow, barley; next day, boiled potatoes mashed and mixed with porked scraps and bran—corn broken in a coarse mill, and so on in rotation; adding from time to time a dead horse, or some other cheap and inexpensive animal food. Burned bones, pounded shells and lime, are supplied in profusion. These, with what they gather on their foraging expeditions, produce a wonderful supply of eggs.

During the rainy reason they are not allowed to leave the coop, except the day be exceedingly pleasant, and then only for a short time. They appear to bear their confinement remarkably well, and with hardly any decrease in the quantity of eggs. While confined they are allowed an extra allowance of animal food.

The attendants requisite to the care of these six thousand fowls are one man and four boys. The houses are thoroughly cleaned once a week, and the interiors whitewashed every three months. Every morning each lot of fowls undergoes a careful inspection, any one found moping or otherwise indisposed is immediately taken to the hospital, and cared for; and seldom is it but that the indisposition is cured, and she takes her place back again as well as ever. At evening the boys go the rounds to gather up the proceeds of the day's labours, which will average two hundred dozen per day the year through.

"Killing time" takes place twice during the year—in the spring, and again at the commencement of the rainy season. All the early chickens are thus disposed of at a good price; and the two-year-old fowl decapitated to give room for the younger broods, as they are supposed to be past profitable service after the second year.

The profits from one year's business amounted to 11,000 dols. The sales were 72,000 dozen of eggs, and nearly 20,000 chickens and two-year-olds. Mr. San Fuentes expresses himself as being perfectly satisfied with the result obtained, and intends to double his stock each year, until every two hundred feet of his extensive farm has its house of fifty tenants.

FOLEY STOPS THE WAY.

(From the *Irish Sportsman and Farmer*.)

TIME was when Ireland's supremacy in matters of art, taste, and cunning handicraft were so well acknowledged that foreigners of all sorts came over to our shores to obtain what benefit they could from our labour and our teaching. Are we less wise, less tasteful, less clever, than in those barbarous (?) times? Not a whit! How is it, then, that "no Irish need apply" to execute the statues of Irishmen, subscribed for with Irish money, and the funds administered by those who profess the extremest nationality? It is about one of the hardest of those hard questions against which we knock our heads and break our knees when Irish questions crop up. Have committees, who, like Napoleon I., crowned themselves, bowed the knee to Baal, or worshipped in the house of the god Rimmon?

For ourselves, ever since we commenced our immortal career, we have been plunging and diving into all sorts of troubled waters to discover why it is that there is nothing visible of the O'Connell Monument, ordered several years ago; the only excuse for its palpable absence being, the great sculptor's overwork, and a gorgeous lamp-post. In the interim, be it remarked, that statues to noble-born folk have not taken the long rest in studios that this has. Smith O'Brien appeared in white within twelve months of his incubation in the *atelier* of Mr. Farrell. But here are the Albert Memorial, the O'Connell Monument, the Lord Gough, Rosse, and the Guinness Statues enjoying a calm repose in a London studio, about as lively as the spat of oysters in June or July. True it is that Mr. Foley is an Irishman; but he has been so absorbed by the wealth and blandishments of Babylon, that his native land seems to be to him as a thing of nought.

Much as we admire and proud as we are of Mr. Foley's genius, we cannot help thinking that we buy it at too great a price. If the comparison must be so, we would rather have half a loaf than no bread. It may be a beautiful specimen when it comes, but, in the meantime, we starve.

It is so obvious that the money which loving citizens subscribe for loved objects should be spent in the country, that we are well-nigh sick and weary of reiterating it.

We would prefer even that an Englishman, residing in this country, should have the preference to an Irishman residing elsewhere, throwing into foreign soil the efforts of his Celtic brain; but there is no need of this alternative. There is plenty of talent remaining among us, and the funds which are at disposal would foster that talent, and go far towards again founding schools of art, to which foreigners would gladly come. Our brains have lost nothing of their might, our imaginations are as vivid as ever, and our right hands have not forgot their cunning; but our artists are dwarfed for want of that whereon to exercise their skill. Occasionally to entrust a national monument to a foreigner is wise; it excites competition and animates zeal. But to make it the rule, is like taking the children's bread and casting it into better-fed mouths.

Some pressure ought to be put upon the artist engaged on so many public monuments, and it is the business of the public to put a very strong pressure upon committees, who seem to think that having once ordered a work, they may rest from their labour, complacently fold their hands, pat the favoured artist on the back, and act like barricades or buffers against the force of public opinion. This *vis inertia* must be overcome in some way, and Irish money for Irish labour must be the cry of those who have nationality enough of a vital kind to make a steady stir in the matter.

DRAINAGE WORKS IN CARLOW.

A CONSIDERABLE area of land through the eastern section of the county Carlow is now being drained under the direction of Mr. Bower, C.E., the Slaney, near Aghade Bridge, being the outfall. Eighteen or twenty small bridges and culverts will have to be rebuilt or under-set. The main stream, or Douglas River, runs by Ballou and Myshall for about fifteen miles; the tributaries are about ten miles long. It is thought the contractor, Mr. O'Connell, of Lacken, will lose a fraction of "a plum;" but he is considered by folk about here in the light of a millionaire. ARPEUTEUR.

Bagenalstown, August 9th.

DUBLIN AND DROGHEDA RAILWAY.

THE report of this company for past half-year is a remarkably favourable one. We give a portion of it:—

Passengers—First class, £8,597 17s. 9d.; second class, £8,386 0s. 1d.; third class, £10,159 2s. 4d.; season-ticket holders, £804 7s. 8d. Total, £27,947 7s. 10d. Parcels and merchandise, £19,835 17s. 9d.; mails, £3,090 4s. 2d.; other receipts, £1,256 19s. 4d. Gross total, £52,130 9s. 1d. The net profit, after providing for working expenses, interest on loans, and dividends on preference stocks, is £22,329 18s. 7d., out of which the directors recommend a dividend on the ordinary stock of the company at the rate of £5 10s. per cent. per annum, less income tax. This dividend will amount to £19,034 10s. 9d., and will leave a balance of £3,295 7s. 10d. to the credit of the current half-year. There has been an increase in every description of traffic during the half-year. This is satisfactory, considering that it compares with the favourable returns of last year, and that there has been no exceptional cause for the increase. In the working expenses there has been a considerable increase in the renewals of permanent way. In the other departments the increase has been only such as was necessarily attendant on the additional traffic. Two old locomotive engines have been sold, and funds have been already provided out of revenue to procure two new engines much more powerful and better adapted to the increased traffic. The line and rolling stock have been well maintained, and it affords the directors satisfaction to be able to state that the traffic has been carried on without any accident to the passengers travelling on the line. The amount charged against capital during the half-year was only £1,083 12s. 5d., and the particulars are set forth in statement No. 5. In the course of the past half-year terminable loans, to the amount of £27,310 18s. 9d., have been paid off, and debenture stock has been issued in lieu thereof. Arrangements have been made for dealing in the same way with the loans falling due in the current half-year.

L A W.

THE following case was heard at the County Antrim Assizes, before Mr. Justice O'Brien:

Graham v. Tate.—This was an action brought by the plaintiff, who is a road contractor, against Mr. Alex. Tate, County Surveyor, County Antrim, to recover £150 for refusing to give him a certificate of having properly made 1,150 perches of road between Ballymena and Glenarm, and 900 perches of footpath between same places. In consequence the Grand Jury of the county refused him payment, and he now claimed damages from the defendant. For the defence it was pleaded that the work was not properly done, and that the certificate was not maliciously refused. After a lengthened hearing, the jury returned a verdict for the plaintiff, without costs. It was afterwards agreed on the suggestion of his lordship, that the defendant should give his certificate; and also, along with his solicitor, Mr. Orr, who is also solicitor for the Grand Jury, should (as the jury had said in point of fact that the contract was fulfilled) give their personal guarantee to recommend the Presentment Sessions to pass the presentment for payment.

TIMBER SALE AT BALL'S-BRIDGE.

As will be seen by our advertising columns, the sale of timber which was commenced last week will be resumed on Thursday morning next by Mr. Michael Croke, of Lower Ormond-quay. Several useful lots will be submitted to public competition.

NOTES OF WORKS.

The new Roman Catholic Church of St. Laurence O'Toole, at Roundwood, Co. Wicklow, was dedicated on Sunday last by Cardinal Cullen. The building is in the Gothic style. Mr. Bryan O'Connor was the contractor. We have no information as to the name of the architect.

The Board of Governors of the London-derry Lunatic Asylum have decided upon enlarging and repairing the present structure, and thus avoid the expense of a new building.

MISCELLANEOUS.

IMPORTANT MEETING OF BUILDING TRADES.—Whilst we are at press a public meeting of all the building trades is being held at the mere of the Free Church, North Circular-road. The object of the meeting (as announced in advertisements and placards) is "to explain the cause of the present strike, and to bring public opinion to bear on the justice of our demand." Our reporter will not attend; we presume that a summary of the proceedings of this very important meeting will appear in the morning journals.

ART IN JAPAN.—Industrial or social science is no impediment to art in Japan. It gets at its results in its own way. As a people they contrive to live pleasantly without being in bondage to any system of superfluous wants. They have no furniture to speak of. But their most common articles in some fashion must be stamped with beauty. This is the feature which first strikes the senses. Convenience is secondary. They heap up tasteful treasure in which beauty is paramount to beguile the mind from dwelling on physical ills. Wonderful to relate, in their enjoyment of its objects, they actually forget our numberless necessities of life. No people can grow up with this disposition without having some of the suggestive loveliness, grace, delicacy, refinement, and atmosphere of natural truth permeate their minds and manners even if it do no higher spiritual service to the intellect.—*Art Journal*.

SUBSTITUTE FOR INDIA RUBBER.—Some degree of success has been met with in finding a substitute for India rubber, and results indicate the inventive ingenuity may be turned to some practical account. A compound of chloride of sulphur, oil and collodion, is said to be available either as India rubber or gutta percha, being in its plastic state easily moulded, and hard and durable when well set. It

can be made of any colour, and is susceptible of high polish. An English invention is simply linseed oil oxidised on glass plates by repeatedly dipping the plates into oil and allowing it to dry each time. The film thus obtained is removed from the glass, crushed and worked thoroughly in the mixing rolls, and a small quantity of gum shellac added to give it the proper cohesion. The substance thus obtained is much like rubber, and can be used for many purposes with equal facility. It can also be vulcanised precisely like the rubber.

THE MONT CENIS TUNNEL.—Preparations on a large scale are being made for the opening of the Mont Cenis Tunnel for traffic. The 15th of September appears to be the date fixed upon. There are to be gorgeous public ceremonies and characteristic national festivities for several days in honour of the event. A cattle show, a flower show, and an exhibition of Italian produce and manufactures are to form part of the proceedings. All the representatives in Italy of foreign states have been invited by the Italian Government to be present, and a subsidy of 10,000 lire towards the expenses of the opening ceremonial is to be granted from the national treasury, to say nothing of the large sums voted by the municipal corporation and other public bodies. Some delay in the opening has been caused by the fact of the smoke from the engines hitherto employed accumulating in such dense volumes that the drivers and stokers were almost suffocated; but the difficulty has been overcome by the adoption of smoke-consuming engines, which have just been sent out from England. One sad association will cast a gloom over the festivities. The engineer who devised the great work, and to whose genius and perseverance, in the face of crushing obstacles, the completion of the tunnel is mainly due, has lately died at a comparatively early age, just as he reached the goal of his labours and realised the hopes of a lifetime. Germano Sommeiller, like M. de Lesseps, had to encounter opposition and to surmount difficulties which would have crushed the spirit of many another man. He lived long enough, however, to live down the assertions, so confidently made, that the project he had planned was absurd, Quixotic, and impossible.

MORNING HEADACHES.—Short as our summer is likely to prove this year, the increase in the temperature of late, and especially during the night, warns us that we may expect it soon or not at all. The dwellers in large towns and cities will be seeking the sea-side, or be off to the Highlands, or on a trip to Switzerland. Those who are not so fortunate as to be able to do any of these things will be condemned to be half stifled by sleeping in the heated atmosphere of a close bedroom. Some people, with the view of shutting out the noises which make "night hideous" in town, close every crevice and chink, forgetful that they exclude all fresh air at the same time; and others, from the small size and vicious construction of their bedrooms, can obtain nothing like efficient ventilation. What fresh air they get has probably been used and warmed below before it passes into the hall and up the stairs, to be distributed to the various bedrooms. The consequence in any case is, that sleep is either prevented altogether or perturbed by dreams, and the unfortunate occupant of the bedroom descends to his breakfast with a headache which he probably attributes to his "biliousness." It is a lesson that cannot be too soon learnt and acted upon, that human beings foul the air in which they are placed, and, unless it be renewed from without, they are simply re-breathing the carbonic acid, organic impurities, and the moist vapours, save such as has been condensed upon the glass, that they had previously produced and exhaled. The size of the room, no doubt, exerts considerable influence. The lowering of the upper sash for an inch or two, or the provision of a ventilating pane, with an open register to the grate, and the removal of all curtains from the bed, will often prove a more effectual remedy against what is called a bilious headache than any antibilious pill that was ever compounded.—*Lancet*.

BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills."—*Civil Service Gazette*. Made simply with Boiling Water or milk. Each packet is labelled—JAMES EPPS & CO. Homoeopathic Chemists, London. Also, makers of Epps's Cacaoine, a very thin beverage for evening use.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

THE *Mechanics' Magazine*, speaking of Benson's Watches says:—"The number of watches produced at Ludgate-hill is something enormous, touching 15,000 yearly, manufactured on the most approved principle of division of labour, under the personal superintendence of the principal. The firm, as we understand, does not profess to make watches at the lowest price, but the best watches at the price; and from the magnitude of their business, and the necessity of more extensive premises, we may fairly judge that they have received the impress of public approval." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's Illustrated Pamphlet on watches, clocks, jewellery, chains, &c. (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post.—J. W. Benson, Prize Medallist, Ludgate-hill and Old Bond-street, London. Established 1749.

BANKRUPTS.

DIVIDENDS DECLARED IN JULY, 1871.

William Boyd, Capel-street, builder, first dividend of 3s. 4d. in £ on £326.
Richard Longfield, Cork, builder, first and final dividend of 3d. in £ on £1,115.
John Thompson, Grantham-street, builder, first and final dividend of 3d. in £ on £1,350.
Nicholas J. Anderson, Great Brunswick-street, first and final dividend of 4d. 1-5th in £ on £2,141.

DEATH.

On the 14th inst., Mr. Thomas Wilson, compositor; for several years foreman printer on this journal.

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DOOR IN SOUTH TRANSEPT, CHRIST CHURCH CATHEDRAL.
PLAN OF THE AGRICULTURAL SOCIETY'S SHOW YARD, BALL'S BRIDGE.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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MESSRS. EARLEY AND POWELLS beg to announce that Messrs. John Hardman and Co., of No. 1, Upper Camden-street, have resigned the business of Artists, Sculptors, Church Painters, and Metal Workers, in their favour.

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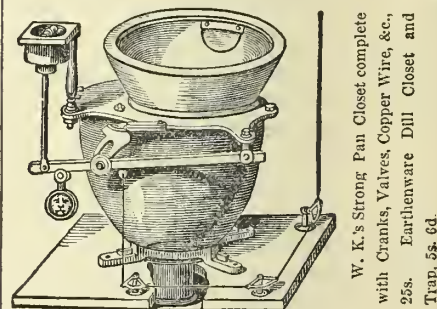
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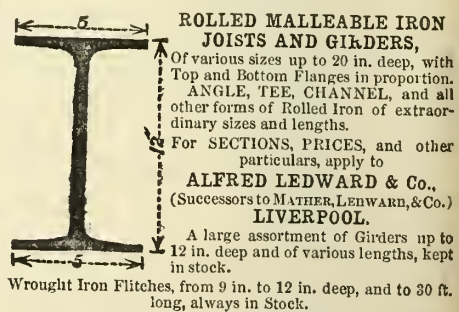
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The Irish Builder.

VOL. XIII.—No. 281.

The Centenary of O'Connell.



Four years hence from this date the cycle of a hundred years will be complete since Daniel O'Connell was born. His public monument is in course of execution by an Irish sculptor, though the great tribune himself is nearly a quarter of a century in his grave. Mr. Foley promises the Testimonial Committee that he will have the monument complete in about three years, but it is quite possible a somewhat longer period may elapse before everything is in readiness for its erection in Sackville-street. The date at which the monument may be finally expected will be an auspicious moment, and the completion and unveiling of the statue may be so timed that

strand, may celebrate the Centenary of O'Connell.

The centenary of Sir Walter Scott—so worthily celebrated a few days since both in Scotland and among Scotchmen in England—has been for many years foreshadowed and prepared for, and why should we not prepare in Ireland for a celebration that neither caste nor creed nor object to, for the grave has silenced antagonisms, and the political animosities that once were rife are forgotten, save as a matter of history?

Thomas Moore is a name that would occur to many in this island as one that might be fittingly honoured by a centenary celebration, but we shall have to wait until 1879 before such a celebration could take place. Moore is certainly our national bard—a name as dear to us as that of Shakespeare to England, or Scott or Burns to Scotland. There is no one, be he native of where he may, or no matter what may be his religion, could object to pay his homage to Thomas Moore. His genius was universal, his melodies could touch and soften the most obdurate heart; and, let the traveller go where he will in either hemisphere, snatches of the songs and strains of the music of Moore will fall upon his ears, waken up his home recollections, and send a thrill through his soul so exquisite that language must fail to describe it. Yes, Thomas Moore deserves a centenary celebration also, and no difficulty will exist when the hour arrives of honoring him.

That of O'Connell is, however, by a fortuitous combination of circumstances, in the way first of being fitly recognised, and the Corporation and the citizens of Dublin would be much remiss in their duty if they failed in availing themselves of the forthcoming opportunity. The sculptor of the O'Connell

Testimonial is a native of Dublin, and the work is one (to use his own words) he is deeply interested in, remarking of it again—"I intend it shall be the principal work of my life." We would say to all concerned—the committee, sculptor, and the public—prepare forthwith for the remarkable centenary celebration of O'Connell!

The 6th of August, 1775, witnessed a remarkable birth; May the 20th, 1847, a remarkable death. Let the 6th of August, 1875, behold the culmination of an honour, the growth of one hundred years. We speak of O'Connell as a public man, ignoring, if that be possible, the political sinuosities of his career; and we claim for him in his public character, as we would equally claim for those who differed from him in creed and politics, the intrinsic justice which is his right, and the right that his disciples, followers, and co-religionists believe they are entitled to have admitted.

We trust that no narrow-minded prejudices will obstruct the way, and that our suggestions will be responded to in due time. If we are the first in the field to project a centenary of O'Connell or Moore, we wish to claim no honour for the suggestion, nor to seek notoriety, should it ever happen to be carried out. Life is short, and even in four years, or in one-fourth that time, the hand that pens these words may be nerveless and cold, but it will be satisfaction for our readers and countrymen who are alive to know that our objects were honest, and that we meant well. Oh, how many noble enterprises have not fallen through in this ill-fated land thro' want of an amicable and kindly spirit! That wayward fate of which our national poet has sung has been our bane for centuries. If we would turn the tide in our favour, we must be more considerate of each others' faults and failings, and more conservative of our national honour and character. This we can do by shewing kindness and reciprocity at the same time to outsiders.

Having said so much by way of counsel, we will now leave our suggestion in the hands of the public to utilise it in the future to the best advantage. Time and opportunities are abundant, and we will only be too glad to assist, to the best of our ability, in any movement that tends to the celebrating in this city at the inauguration of the O'Connell Monument the

"CENTENARY OF O'CONNELL."

OUR SANITARY REFORMERS— THE MEN WHOM WE SHOULD HONOUR.

This is the era of monuments and testimonials, but how few of them really come as the just reward or in honour of public men who have truly benefited the human family by their labours. Public philanthropists, no matter what may have been their sacrifices during a long career, seldom receive more from their contemporaries than passing praise, and not seldom indeed is this praise ungrudgingly bestowed. There are always small minds and warped intellects, in whom prejudice has ever an abiding place, who will not acknowledge that any person in whose success they have not a direct interest has achieved universal good. This is an evil that besets both private and public life, but in relation to the latter the jealousies generated by a good man's uncompromising spirit are ever cropping up, as if some devilish genius inspired devils in human shape to

make endless war on honest reputations. Inventors of infernal machines for the destruction of human life have died full of years, with plethoric purses, and, let us hope, with no untroubled souls. Independent of their own gains, pensions and knighthoods have been bestowed upon them in life, and statues in the public thoroughfares have attested their worldly success. Poets, soldiers, statesmen, novelists, politicians, and other profound workers, bad and good, have found a recognition in their decline, and when the brain and hand failed to contribute to the exigencies of their position, the Civil Service Pension Fund made smooth their last days in the "sere and yellow leaf." How many hundred good and useful men have there not been for whom no civil lists existed, and how many are there not in our midst to-day who are working on incessantly for the public good, and who dream not of fee or reward? Very, very many indeed, though their claims are not of equal merit. Benefactors of the public mostly impoverish themselves to enrich or relieve the many, and if adversity overtake them, the helping hand they had given to others is seldom outstretched by those who may be in affluence to help them in their need. Thus founders of our public asylums and hospitals have in more instances than one found it difficult to obtain admission into the very home that their endowments established—a fact that illustrates forcibly the forgetfulness of a benefited generation of their benefactors in a past one. Military talent and success have almost ever been honoured and rewarded, and why? Is it because life is risked by the individual or the many, or because the leading individuals sacrificed many lives, that many more opposed to him might be also sacrificed, or, shall we say, slaughtered? *He saved his country*—but one may temporarily save his country without benefiting his kind. A medical man as well as a military one risks his body and limbs, and perhaps more often than the former. He does it in the pursuit of his profession, and for a respectable income, it may be said, truly, but "the greater the risk the greater the reward" does not always hold good in his case, as many a young widow and helpless family attest. Catholic and Protestant clergymen in hospital and workhouse infirmary, or at home at the bedside of a fever patient, prostrate in sin and disease, run their risks, but they anticipate but little public reward, and sparse indeed are the public testimonials erected to their memories. The mission of clergymen partakes more of the spiritual than the worldly, and they must be contented with a different applause than what awaits those who successfully wrestle with the outside throng.

Were a character or characters on the public stage to arise, neither clerical nor military, medical nor political in their profession, and were such a character or characters by a mission peculiar to themselves to succeed in preventing crime and disease to a great extent, and if by their teachings and labours they improved the public health, morally and socially, and lengthened the span of human life upon the world—if such men were to spring up, or if even among them one more prominent than the rest was pointed out to us, what would be our feeling toward such an individual? Would we not one and all agree that such a man deserved not only praise and honour, but some fitting public recognition? Why, because independent of his ordinary pursuits, he was devoting his

life, sacrificing his years, and risking his own health to the task of prolonging the lives and restoring and retaining the health of others.

We have men of this stamp amongst us in these kingdoms, and among them there is one whose head and hand, whose tongue and pen have laboured night and day for a lifetime, and is still incessantly toiling more than others. He may not reside by the Liffey or Clyde, though his labours have extended to both, but happily for his own countrymen and his own well-earned reputation, that his lot was cast beside a mightier river than these, and one where his services have been utilised. Had it been in this ill-starred city, where jobbery has almost garrotted public spirit, and where caste exists as a blight, and creed as a sore amidst separate sects and systems,—were it here, the attributes of a St. Michael or an Angel Gabriel embodied in the soul and body of man, would have failed in saving him from characteristic indifference and neglect. It is well that it is as it is, for with education on the move, sanitary knowledge must spread, and its pioneers will, despite all opposition, conquer their long-retarded reward.

A word to public boards or other bodies holding moneys in trust for deserving objects. Messieurs, if you really desire to inaugurate a new era in the voting of public testimonials and statues, strike out a fresh and untrodden path, and there is one before you. Honour your Sanitary Reformers. Honour the men who gave your towns and cities pure water, good sewerage and drainage, pure air, increased your public asylums and hospitals, retained your open spaces, furnished you with new roadways, illuminated your dark lanes and entries, exposed vendors of light weights and measures, and nefarious adulterators of your food and drink, opened parks for your amusement and health, gave you public baths and wash-houses, and stood by you in press and forum for every necessary liberty for the subject. Honour these, one and all, whenever or wherever you can, for they are the true friends of the human race.

If one more distinguished than others in the field of sanitary science as worker, journalist, and architect, should strike you as one eminently deserving of honour, hesitate not to honour and reward him, for he will be found entitled to it on the part of the Crown and the people, and also to the distinction that accompanies such a reward for a life well, nobly, and usefully spent.

NOTES OF CELEBRATED IRISH WELLS, SPAS, AND MINERAL WATERS.

A SHORT notice of Surgeon Mapother's interesting little work, "Lisdoonvarna Spas, and Sea-side places of Clare," having appeared in last issue of the IRISH BUILDER, the present writer is tempted to usurp the functions of the reviewer, and enlarge upon the subject. As apologies are unnecessary among friends, we trust to be forgiven our intermeddling proclivities in ranging over the domain of others.

Whether any of the holy wells of ancient Ireland came under the denomination of spas, or were actually such, we are not prepared to state. Wells and waters of great purity have existed from immemorial time in this country, and exist in abundance still in all parts of the island; and there are others in the sister kingdom which, though not called holy, are

pure, and are even termed mineral waters, though in reality they are nothing more than clear and sparkling springs, such as those of Malvern and Holywell. The term holy well retained in the name of this town in Wales, occurs, of course, from the fact of the celebrated well of St. Winifred, which sends forth every minute twenty tons of the purest water. The origin and surroundings of this ancient and most copious spring are Celtic in every phase. In the city of London, and in Dublin also, we had formerly remarkable wells, but the growth of the capital in both places has absorbed their sites, and the precise spots of many of them are unknown at the present day. Occasionally, however, during excavations, they are tapped, and well forth again in their original purity. One of the famous wells of the seventeenth and eighteenth centuries in Dublin was that of Francis-street, spoken of by Dr. Rutty and instanced by Dr. Mapother. It was one the purity of which was very doubtful at all times, but more particularly in its latter days. Near to the site, or adjoining many of our old ecclesiastical buildings, wells of good repute were common, and may yet be discovered on a diligent survey. A very remarkable well of this class is still to be seen in the crypt of one of our old city monasteries, situate at a considerable depth under Mr. Bayly's timber-yard, George's-hill. This well and its underground approaches and galleries are worthy of a visit.

Not far off is situated Carton's pump, near to Newgate, probably the same water—a water long famous for its drinking qualities. We have known persons to carry pitchers and cans across the city three or four miles filled with this water. Whether it retains the same repute at the present hour as it did five and twenty to thirty years ago, we cannot say, as we are no longer within a convenient distance. Near to Portobello Bridge we remember in our young days a very clear well of drinking water much frequented, beside which was stationed a water-cress woman, who supplied a cup and some salt, and, if rumour spoke correct, carried a bottle filled with more exhilarating contents in her capacious pocket, for the accommodation of confidential customers who knew how to exchange with Kitty the well-known wink, which was ordinarily translated, "Sure and you know, Kitty, what we mean."

St. John's well was another famous resort, near to Island Bridge, and within a stone's throw of the renowned "Bully's Acre," i.e., the Royal Kilmainham Hospital fields. In the vicinity of our Phoenix Park, and within the park, were other wells much resorted to in days gone by. If we remember aright, there was an old well situated somewhere in the village of Drumcondra, but we believe this has long been covered in or dried up. In Castle-avenue, Clontarf, there was a spring called Brian Boru's well, which gives forth water of a very good quality. This was many years since converted into a fountain; and the famous well near St. Doolach's Church, on the road to Malahide, was a very famous one of its kind, and was credited afar and near with remarkable curative properties. Pilgrimages were made in the last century to this famous spring. None of these wells, however, came under the denomination of spas or mineral waters, though it is quite possible, to a limited extent, some of them possessed the chalybeate property.

Dr. Rutty, a Dublin physician of repute in his day, published, in 1768, a "Synopsis of

[Irish] Mineral Waters." Dr. Charles Lucas criticised somewhat severely this work in an "Analysis of the Synopsis." Lucas was certainly a better chemist than Rutty, but the latter did not brook the censure of his critic, as he replied in his "Examination of the Analysis." Rutty, both in his "Synopsis," and in his "Essay towards a Natural History of Dublin," furnishes a good deal of information on the mineral waters and spas in existence in Dublin during the eighteenth century and previous. He speaks of a chalybeate in or near Hollywood Glen, where "ochres richly ferruginous" were to be found, and, speaking of iron stones and iron ores, he observes that they were frequently to be found, with others of a cognate nature, in the neighbourhood of several of our chalybeate springs. Near Garristown, county Dublin, where formerly existed a spa of some pretensions, the *lapis Hibernicus* was in abundance. It is a sort of rotten stone, or mouldered pyrites, and from that class of it called Irish slate, vitriol was formerly manufactured in large quantities in this country.

Rutty made several experiments in investigating the real composition of *lapis Hibernicus*, with a view of proving that it was a principal ingredient in the formation of chalybeate water. According to the chemistry of his day, he gives the result as follows: "It consisted of a solar earth, sulphur, a martial vitriol, and some pittance of copper." Martial vitriol he considered to be the principal or most active ingredient in these grey rotten stones. A Dr. Hill, a writer on fossils in the last century, affirms that he found in pieces of the *lapis Hibernicus* "one-ninth part weight of alum." Alum works are spoken of by Sir William Petty as having once existed in this kingdom, and alum, it is known, is accompanied by a certain quantity of vitriol, and both certainly exist in many of our Irish stones and mineral earths. A chalybeate spring existed at Augh Farrel, in Dublin, and a pale brown ochre in the vicinity. The existence of vitriol in our bogs is proven by the colour of the roots, branches, and trunks of oak, alder, and other timber, dug up from them. A native green vitriol exists in connexion with the Wicklow mines, and it was plentiful in the lead mine once worked at Cloughran, on the road to Swords, where also copper was found.

In his observations on calp, or the black quarry stone of Dublin (an inferior description of building stone), the Hon. George Knox, a member of the Royal Irish Academy, at the close of the last century, gives us some interesting particulars, and his analyses of several kinds of it is curious. After giving an account of the great quantities of calp found in the neighbourhood of Lucan, and the appearance it presents in the quarries, he goes on to speak of the Lucan waters. He tells us that on the grounds of Edmondsbury, within a mile or less of Lucan, there is a spring which the common folk called the "boiling well," of much higher temperature than the other springs in the district, and he states, from the bottom of this spring were "continually rising large bubbles of pure azotic gas." Azotic being the old term for nitrogen, the boiling well of Lucan here mentioned, although possessing properties destructive of life, only possessed it in common with other gases equally destructive. Mr. Knox made an analysis, and the result was that he found that both azotic and hydrogen gas escaped from the water at a boiling heat, and likewise that, after evaporating the

Lucan water to dryness, "a small quantity of a fetid, bituminous matter, soluble in alcohol, remains mixed with the earth and salts." The "difficulties [continues Mr. Knox] attending the investigation of the ingredients of an hepatic water, it will not afford any surprise that I should offer the result of mine with diffidence."

In two gallons of Lucan water the following is the result:—

	Grains.
Carbonate of Magnesia	1½
Carbonate of Lime	23
Carbonate of Soda	39
Muriate of Soda	4
Sulphur	16
Bitumen	0

"The carbonate of lime [he states] is held in solution by an excess of carbonic acid, amounting to about thirty-two cubic inches in two gallons of the water. The sulphur is in the state of sulphuretted hydrogen."

The subject of the Lucan springs would be well worth investigation in the present day, not only for curative purposes, if they possess any still, but for the purpose of illumination. Some daring speculator, with a little brass as well as brains, might "strike ile" in the neighbourhood, in some oozy, bituminous centre, and be rewarded for his pains by a jet of petroleum. This would be rather startling news for the Dublin coal and gas companies.

Leixlip spa, once so famous, has vanished into misty space. The analysis of these waters, as given in the last century, was—

	Grains.	Parts.
A wine gallon contains, of muriated mineral alkali, dried in the temperature of 200° Fahrenheit	30	37
Muriated vegetable alkali	2	7
Vitriolated vegetable do. . . .	0	7
Muriated lime	8	73
Vitriolated lime	1	0
Airolated lime	13	44
Muriated magnesia	0	97
Argil, or clay	0	50
Silex, or earth of flints	0	25
Bituminous matter	0	14

It was also found, at the heat of 212, Thermometer 70—0, Barometer 29—25—

	Cubic Inches.
Of Fixable air	1.50
Atmospheric air	1.14

The above is a somewhat curious analysis, and we copy it, word for word, in the chemical language of the last century. We have no doubt but our worthy fellow-citizen, Dr. Mapother, can apply the hydraulic lever of his medical knowledge in reducing this rather clumsy analysis to first principles, and give us in a few lines the exact agents in the Leixlip spas.

While upon the subject of Leixlip, we will add a rather curious enumeration of the number of persons and vehicles that passed on one Sunday, in August, 1794, through the town on their way to the new spa.

The *Anthologia Hibernica*, a Dublin monthly magazine of the period, records the fact that some gentleman placed himself in his window at six o'clock in the morning "with pen, ink and paper," and between that hour and four and five in the evening he reckoned—"55 coaches, 29 post-chaises, 25 noddies, 82 jaunting-cars, 20 gigs, 6 open landaus, 221 common cars, with company, and 450 horsemen, which, at the lowest computation, must have carried upwards of 3,000 persons, to which, if 1,000 be added from the adjacent parts of the country, and at least double the number of pedestrians, we will find that upwards of 12,000 persons resorted the well on that day, attracted by the wonderful accounts published of the cures effected by these famous waters."

Whatever may have been the virtues of the Leixlip water, it would not do amidst such a motley assemblage for a valetudinarian to visit such a scene. Such waters, to use an expression of Dr. Mapother's in relation to the fast-life watering-places in Germany, are better drunk away from their source than at it. We may imagine many a whiskey jar and brandy flask being dipped in Leixlip Spa when George the Third was king, and Grattan thundered in an Irish House of Commons.

George Semple, the architect of Essex Bridge, in his Diary concerning the rebuilding of that structure, attached to his treatise "On Building in Water," gives us account of "An Extraordinary Discovery at eleven feet beneath the low water-mark." In sinking for the foundation of one of the arches of that structure a surprising boiling-up of water took place. The architect, becoming alarmed for the safety of his work, had to take great precaution to prevent the *jetteau*, as he calls it, foiling his enterprise. Dr. Rutty, already mentioned in our notice, being an old friend of Semple's, was consulted as to the cause, and the nature and properties, of this sudden ebullition. The Rev. Dr. Hudson, another friend, who was a constant observer of the architect's work, accompanied with several gentlemen, came to examine this curious jet. "He called (says the architect) for a glass, and they all tasted, smelled, and attentively observed its colour. They then dropped a piece of silver into the glass, which was soon turned into a dark, yellowish color; and at length they all concluded that it was a mineral spa, and advised me to send for Dr. Rutty." The architect went himself for Rutty, and, after trying all the before-mentioned experiments, "acknowledged that it seemed very like the water of Swaddling-bar [Swanlinbar], but concluded that any sea-water that partook of putrid water, running from a foul sewer, might have the same effect that had, and he desired me to send some of it home with him, which I did." Rutty made a very shrewd guess, and was not far astray. The doctor on the next day assured the architect "that it was no species of spa water, but, he believed, a large body of subterranean water that ran along the surface of the rock, and communicated with the sea-water, and also partook of the foul waters of the bed of the river and the sewers. He then produced as much salt as would cover a shilling, which he said he had extracted from one pint of that water, which was not near so much as a pint of sea-water would produce, and concluded with giving me this friendly caution—"Take great care that you do not let that water break up upon you; for, if you do, you will never conquer it." This friendly advice of Rutty's the architect followed, and by timely and incessant precautions, conquered his difficulties, and successfully laid the firm foundations of Essex Bridge. We consider that this historical item in the history of our city will not be out of place in this notice of mineral waters, spas, spa drinkers, and their associations, in the old city of Dublin.

There are some waters which, though commonly termed mineral, are not in reality so, and wells and springs of this class are plentiful in Ireland and in the sister kingdom, as well as on the Continent. Rain water has a powerfully solvent property, and its percolation through certain soils dissolves many mineral substances.

North and south of Dublin iron water may be found in many places. In the district of

Fingal, extending to the Hill of Howth, and including some of its mountain streams, and in the Dundrum neighbourhood, on the south. The quantity of mineral substances in most of our ordinary rivers, springs, and well water is scarcely perceptible; in others it can easily be detected on tasting. When these waters become strongly impregnated with the saline or other substances they become unfit for ordinary use for domestic purposes, and they then come under the name of mineral waters.

Mineral waters, as a class, are divided into six divisions—Alkaline, Acidulous, Sulphureous, Saline, Chalybeate, Silicious. It would be outside our province to enter into a technical and chemical description of their several qualities. They all possess special virtues, so to speak, of a stimulative or curative nature, and their use as drinks is regulated according to the complaints or wasting diseases peculiar to many constitutions.

A mineral water, *per se*, of any distinct kind, cannot, of course, be recommended for general use, and people should not run away with the belief that whether their system requires it or not, it is useful to drink it. They should ignore fashion in this particular, and consult a respectable medical practitioner. If one were to give any credence to the extraordinary reports published in some of our old city chronicles and newspapers of the last century, the virtues and powers possessed by some of the mineral spas of Ireland were simply miraculous. The blind received their sight, the crippled flung away their crutches, impotent husbands and sterile wives were blessed with renewed vigour, and happy and rosy children in numbers resulted from their drinking from these mineral spas alone.

It is a fact, however, that the weak-limbed, the sickly, and the scorbutic recovered and got rid of their skin diseases, and the bloodless became stout and strong, and that their appetite and animal spirits returned. Acting according to such advice as Dr. Mapother has given and can give, the mineral spas of Ireland, with proper diet and regimen, can be availed of with advantage by many.

We are unwilling to trench upon the ground of Dr. Mapother by any extracts from his little volume, historical, descriptive, chemical or curative, as we consider that every lover of our old wells, holy or mineral, natural or artificial, ought to procure his small pamphlet, which will well repay perusal.

German mineral waters are largely imported into London of late years, and many of them are very efficacious in certain diseases, and for weakened and bloodless constitutions. The Lisdoonvarna Spa and the locality is all that could be well desired, and its benefits can be obtained in a few hours' journey, without any sea voyage. To those, however, who wish to procure excellent foreign natural German and mineral waters in this city, the firm of Messrs. Thwaites, in Sackville-street, will provide them; and through the house of Baker & Co., Mark-lane, London, who are the sole agents in the United Kingdom for G. Eigel-Itschert, Cologne, any quantity and every variety of foreign mineral waters may be had.* "The fame of mineral waters (observes Dr. Mapother) is a thing of slow growth." In Ireland

* The firm of Hamilton and Long, Sackville-street, and that of Bewley and Draper, of Mary-street, well-known, long-established, and respectable chemists, deal largely, we understand, also in foreign mineral waters as well as those of their own make. We deem it right, and in justice to those houses, that the fact should be known. As fellow-citizens, and large employers of Irish labour, their names are worthy of honourable mention.—ED. I. B.

it has been so, as the history of many remarkable spas have shown, once popular, and now nearly forgotten. We trust Lisdoonvarna, which has preserved its popularity over a century, will prove, with one or two more, glorious exceptions. The revivification of some of our old spas if even possible is nowise desirable, at least with their older accessories and accompaniments.

Water, said the Poet Pindar, is the best gift of heaven. We repeat, assuredly it is, provided it is pure. Our people, however, need to be indoctrinated into the practice and usage of the bath, sanitary habits, personal and home cleanliness, for without these, health, personal or public, is impossible of attainment.

Dr. Mapother has done good work in his native city, and if our little gossip in his footprints is in any manner auxiliary in the same god-like mission, we will feel both happy and proud of having assisted in so honourable a labour.

DUBLINIENSIS.

SANITARY MATTERS IN THE CITY AND PROVINCES.

WITH the needful aid of our excellent contemporary, the *Builder*, we trust that we have at last succeeded in awaking public attention to the wants of Dublin and the neglect of its corporate authorities, and also that of other municipal authorities in Ireland. The *Builder* of the 19th inst. gave its readers a "*Diagnosis in Dublin*," a picture true in substance and in fact. The *Daily Express* of this city has published one or two reminders, pertinent and to the point. It comes better late than never. There are other journals remarkably reticent on sanitary matters, for reasons which are obvious, but for the present we will refrain treading upon their corns. At a late meeting of the Public Health Committee the following summary of the sanitary duties discharged during the month of July was submitted:—

"Twelve house-drains were constructed, and 49 repaired; 7 privies and 5 ashpits were constructed, and 490 were repaired and cleansed; 383 dwellings and 142 yards were cleansed and repaired; 32 accumulations of manures were removed; 15 swine were removed from dwellings, and 58 swine and 2 other animals from yards. There were 2,323 inspections of tenement houses, 4,665 of rooms, 194 of nightly lodgings, 183 of slaughter-houses, 94 of bakeries, 29 of dairy-yards, and 37 of workrooms. Water was supplied to 13 tenement houses, 1,340 sanitary defects were discovered, and 1,099 were remedied; 127 infected dwellings were inspected and cleansed, and 18 others were chemically disinfected. Convictions were obtained for sale of adulterated milk, and three for possession of diseased meat intended for sale as human food, of which there were 65 detections, amounting to a total weight of 3,542 lb.; 636 sanitary notices and 185 summonses were served, and 184 convictions were obtained for breaches of sanitary enactments. The health of the city was reported as being satisfactory, and the mortality from zymotics as being less than in any corresponding month during the last six years. Diarrhoea was reported as being less prevalent than is usual at this season. The Corporation disinfecting chamber at Marrowbone-lane was used by 10 parties, and 506 articles were disinfected."

Here is a confirmation of the statement of the *Builder* as well as of our own, and this statement is supplemented by the letters of several correspondents. The *Express* says:

"The matter chiefly concerns the Corporation and the police. If they can be stimulated to exertion, some assurance of protection will be obtained for the citizens. At present the condition of the city is at once dangerous and disgraceful. The accumulation of dirt in many of the streets, almost within view of the Castle, and the utter absence of sanitary arrangements, will inevitably react with terrible effect upon the inhabitants in case the disease should approach our shores. It is impossible for any one whose business obliges him to walk through the streets which adjoin some of the leading thoroughfares—and they are not the worst—with-

out having his sense of decency outraged, and his alarm for the public health excited, by the shocking condition in which the footways and thoroughfares are kept, and the exhalations which come from the cellars and basement storeys of thickly inhabited houses. It seems almost to refute the established principles of the medical profession that the miserable people, half fed and half clad, dissipated and dirty, who swarm about these wretched habitations, have not long since been decimated by plague. We read accounts of the exertions of the sanitary department of the Corporation, and the statistical returns published every week attest the activity of their officers, and the continued necessity for their diligent attention. Nothing could seem more satisfactory if it were only one's lot to read their reports. It might be supposed that Dublin is one of the cleanest and best kept cities in the empire, instead of being, as every stranger pronounces it, one of the filthiest. . . . The Liffey has hitherto borne the whole odium of the exhalations which are so offensive and dangerous; but it has had more than its own sins attributed to it, and the effect has been to divert attention from other sources of pestilence which abound throughout the city. It is surely time for the Municipal authorities and the Government, if necessary, to take the matter in hand and apply a remedy without delay."

We hear that in both Cork and Waterford precautions are being taken. In the latter city small-pox has developed itself, and

"the Mayor has made visits to the honeyards and other places where nuisances might be expected, in order to have stringent measures taken for the prevention of the spread of disease. He directed summonses to be issued against several proprietors of honeyards, from whose premises it is alleged there proceeds a noxious smell, which is detrimental to the public health. Those parties had been already prosecuted under the Sanitary Act, but a clause in it compels the magistrates to dismiss the case on the defendants entering into security to meet any prosecution in the superior courts. It was now sought to convict them under the bye-laws of the Corporation, but a question being raised whether the introduction of the Sanitary Acts did not take away the power of proceeding under the bye-laws, the case was adjourned for the opinion of the law adviser."

Since our last issue the town of Drogheda has been giving evidence of activity. According to the local *Conservative*—

"The market jury made a seizure of some water supplied through the pipes of the Waterworks Company. The water was brought to the Tholsel, where the jury examined it, and after a considerable time spent in deliberation, arrived at the conclusion that it was unfit for drinking purposes. They attended afterwards before the Mayor, who declined to make any order, believing that the Act did not apply. We hope that the quality of the water, and the means to be taken for its improvement, will receive serious consideration at the approaching annual meeting of the Company. The following are the resolutions agreed upon by the market jury:—

That in our opinion the water now being supplied by the Drogheda Waterworks Company is utterly unfit for human use, and is calculated to create disease and spread contagion.

That recognising the immediate necessity of having some sanitary precautions taken, and having some doubts as to our legal position in the matter, resolved—that copies of these resolutions be forthwith sent to his Excellency the Lord Lieutenant, the Board of Guardians of Drogheda Union, and magistrates of the town of Drogheda, praying that the most urgent efforts be at once adopted for the abatement and removal of a nuisance so highly dangerous, not only to consumers of the water, but to the community at large."

In Maryborough instant attention would seem to be needed. The public sewers are in a very bad state, and the town commissioners are not agreed between themselves as to the best manner of proceeding. We trust without any further wrangle they will attend to the purity of the water supply and the cleansing of the town.

Their brethren, the Naas Commissioners, are a little more active in the matter, as we perceive by the local organ. The clerk read his report, from which it appeared that—

"With one or two exceptions, all the public sewers of the town were in a filthy and dangerous condition two-thirds of each being filled up with the most offensive nuisance. He (the clerk) estimated the probable expense of cleansing them to be about £30. He stated that Mr. Brett, County Surveyor, had kindly offered to give the Commissioners his advice with regard to the contemplated plan of having the work properly executed.

The chairman observed that the Commissioners having an annual surplus of about £80, he thought they could not appropriate it to a better purpose.

The following resolution was proposed by Dr. Hayes, and seconded by Mr. Farrell, and unanimously adopted:—"That advertisements be posted calling for tenders for opening, cleansing, and making good the sewers of the town of Naas. The tender to be by the perch, and to be done within one month from the date of acceptance of the tender. The work to be done to the satisfaction of a competent authority to be named by the Commissioners, and security to be given for the due performance of the work."

At the request of Mr. Cantrell, the town inspector was called before the meeting, and having received special instructions from the chairman to exercise due vigilance in inspecting the several houses throughout the town, and to see that they were kept clean and in good order, the following resolution, proposed by Mr. Cantrell and seconded by Mr. Farrell, was read to him—"That our town inspector be ordered to examine and report on the sanitary state of the several districts of the town of Naas."

At the last meeting of the Commissioners of the Township of Blackrock—

"It was arranged to select several members of the board to form a deputation to wait upon Mr. Vernon, at Wilton-place, Dublin, with reference to the proposal of the Earl of Pembroke to grant a sum of £1,200 or £1,500 in aid of the expenses necessary to remedy the nuisance caused at Blackrock by the slop land adjoining the railway station. The engineer submitted a plan of the sewerage of the township, which he proposed to form into one general district, with a single exit to the sea at the place above-named. The cost he estimated at £12,000, to be levied off the district by a rate of 6d. in the pound. It was reported that a heavy expenditure had been incurred by the construction of works at Idrone-terrace, in consequence of the defective construction of an old sewer. The board generally complained of the circumstance, but saw no way of avoiding the cost, which will have to be defrayed by the ratepayers."

A number of householders in the Kilmaham Township appeared to answer summonses issued by the Township Commissioners for permitting their holdings to remain with defective sanitary arrangements. In every case orders were made to abate the nuisances complained of within a certain period, at the expiration of which fines would be inflicted should the required improvements not be effected.

As we are going to press we are informed that increased activity is being manifested on the part of our corporate authorities. Several sanitary cases are coming up for hearing, and in those already heard orders were made for the abatement of the nuisance complained of. One of our magistrates observed—

"that he had driven through Church-street a few days previously with a gentleman who had extensively travelled over the world, and that gentleman said that in no city in the world which he had visited, did he see such a scene of filth as was exhibited in that locality, and the passages leading to it. In fact it was his (the magistrate's) opinion that the filth was sufficient to generate cholera without that disease being imported into the country. In another case his worship said that the owners of the wretched tenements let to lodgers appeared only to care for getting their rents, and did not care whether tenants had the most ordinary accommodations for human beings."

THE BURKE AND GOLDSMITH STATUES.

WE are taking no undue credit to ourselves when we say that the articles which have recently been appearing in the *IRISH BUILDER* have drawn public attention in more than one instance to native art and manufacturing topics. For several years the daily and weekly press of this capital have been strangely oblivious of their duties in this respect, and with a petty, and what might with strict justice be termed an exclusive and envious spirit, did their best to ignore the earnest and untiring labours of their professional brethren in the field of journalism. We can, however, forget the past, as our position enables us to work independent of praise or the condescension of those who think that the puff of their nostrils would blow us in or

out of the public arena. No matter what may be the *animus* of our journalistic brethren, or of public bodies or public men, we will continue to award praise and censure wherever it is desirable. Wherever we see useful and pertinent remarks made, and believe them to be honestly intended, or if they tend to a useful purpose, we will, without any narrow bias, acknowledge them, and back them up if necessary. Acting in this spirit, we transfer to our columns an article from the *Evening Telegraph*, believing that the more it is read, the stronger will be public opinion upon the matters to which it refers:—

"Some hundred years ago there studied at Trinity College, Dublin, two young men named respectively Oliver Goldsmith and Edmund Burke. In due course they passed from college into the world, and there wrote and said certain words which the world will not willingly let die. The one became the greatest orator, philosopher and conversationalist of his age. The other dissolved the unholy tie which, since the days of Boccaccio, had subsisted between Fiction and Obscenity, and for the delight and happiness of millions gave to the world that charming prose-poem in which are depicted the losses and trials, the joys and sorrows of the family which was gathered under the roof-tree of Wakefield. The genius of these great men was fully acknowledged during their lives, and posterity has more than indorsed the contemporary verdict. The remarkable point in both men's lives to which we wish to draw attention is that to *both* was Trinity not an *Alma Mater*, but a *Sava Mater*, a most cruel nursing mother. How she treated poor Oliver, how she nearly broke that sensitive heart, how the unhappy youth was snubbed, bullied, and insulted, finally stricken to the earth by a brutal don, how he was the "wooden spoon," the last in the list of graduates for the year—have we not read all these things in the admirable pages of Mr. Foster? And to her other great graduate Trinity was almost as unjust. It was within her halls that those wretched stories were originated which gave the high spirited Irishmen so much pain. Trinity was the nest in which were generated those stabs at Burke's fame and happiness, the romances about his being a Jesuit in disguise, educated at St. Omer's, and kindred tales of malevolence. The great men have passed away, posterity has, we repeat, confirmed the high opinion in which contemporaries held their genius, and in our own day, in the capital city of the land which gave them birth, the land which both, in their own way and time, so dearly and so passionately loved, enduring memorials of their fame have been raised by the greatest sculptor of the age. By a strange irony of fate, it was to the authorities of Trinity College that the custody of these statues was committed, and it was hoped, that, by their jealous care of the noble works of art entrusted to their keeping, they would make amends for past errors, and emulate in their respect for the fame of dead genius as they surpassed in neglect of it when living, the seven Greek cities which

..... claimed great Homer dead
Through which the living Homer begged his bread.

Alas for all our anticipations! The poor effigies of the dead have been treated as badly as those whom they represent. The dons of Trinity appear to be utterly insensible of the value and importance of the works committed to their charge. They have treated two of the noblest statues in Europe with about as much intelligent care as the Turkish masters of Athens did the glorious ruins of the Acropolis. The statues have been exposed for a long period to atmospheric and climatic influences without any attempt being made to remove the dirt which has thus accumulated on them. Their fine lineaments have been obscured by soot and dust. Mosses and lichens have actually grown in the folds of their robes, and the statues have become foul, begrimed things of ugliness instead of the things of beauty they were when they issued from the sculptor's atelier. Will it be believed by a well-known process, and for a sum of about thirty pounds, all this filth could be cleared away, and the statues restored to their pristine state for nearly a generation? The only defence that the Trinity people have is that the hideous railings they have recently erected makes the statues all but invisible from the street, so that it does not matter what their condition may be. No wonder that during his recent visit to Ireland no earthly power could induce Mr. Foley to go within a hundred yards of College-green."

A word, by way of *finis*, concerning the statement made in the last sentence of our contemporary's article. On whose authority is it stated that Mr. Foley could not be induced to go within a hundred yards of the

children of his brain? As accuracy is all essential in public matters, we would like to hear Mr. Foley confirming the above. Was the dislike expressed by himself, or is it mere hap-hazard assertion? We saw and spoke to Mr. Foley himself, during his visit to Dublin, in sight of College-green and his own twin statues.

NATIVE LITERATURE, AND THE PUBLISHING TRADE.

OUR article on the above subject in our last issue has elicited a letter which deserves attention, for more reasons than one. The writer, as an editor and proprietor of an Irish periodical of some professional note, states his case, but his statement in nowise proves that the treatment he complains of is characteristic of Dublin publishers or printers. That there exists less facilities for publication and making profits in a literary venture in Dublin than in London we do not attempt to dispute, but that fair play and honourable dealing cannot be had in Dublin, we at once earnestly and emphatically deny. We know the ways and sinuosities of the London publishing trade, and the immense mechanical appliances that can be brought to bear on the production of a literary enterprise, and we are acquainted with the tricks of the trade in that city, and, knowing such, we honestly assert that if authors acted in a more conservative spirit, and in a more friendly intercourse with one another in this city, all that is possible to obtain in London would also be positively certain here. The publishing trade is certainly out of gear in Dublin for many years, and this is not only attributable to publishers and printers, but is also owing to Irish journalism, and the fashion and tastes they have catered for. Self-abasement paved the way to the decline of native literature and the Irish publishing trade, and this self-abasement is evidenced every other day in our very midst. Our nationality in the matter in question is not regulated by a political standard of hue, creed, or colour, but is simply and solely the nationality of Irish interests and native enterprise. As good and as perfect typography can be turned out of Dublin printing establishments, except in very exceptional cases, as can be produced in London; but if fashion and social policy prevail, driving men to prefer a London mint-mark to the *imprimatur* of a Dublin house, no reason can prevail in abruptly altering it. The lowest tender is no proof that imposition is attempted in the estimates of higher competitions, and the history of many firms in London has proved that estimates are given in for the production of work, for which the said work could not be produced without a serious loss to the printer and publisher. To open trade, and establish a business, work is often undertaken at ruinously low prices, and firms in London have been known to struggle on for several years in a state of insolvency. Sometimes, by a combination of lucky circumstances, bankruptcy is averted, and a trade is eventually established; but more often it is otherwise.

If under such a condition of things, proprietors of provincial, English, or Irish journals succeed in having their printing and publishing executed in London, it is a very questionable boast, and a matter in which they ought to take but little pride. How often are not those migrative proprietors and editors swallowed up by their printers, publishers, and paper manufacturers. We could at this moment lay our hand upon several of them who had to relinquish their hold upon the publications of which they were the putative fathers.

Must the business habits of London firms, then, be glorified to the humiliation of Dublin houses? It is all very well to tell the outside public "the story of my life and experience," but the outside public are in utter ignorance of what is passing behind the curtain. "An Editor's" tale may be a true one, but we know enough of London firms to know that

really good work in London in the printing line costs a smart price, if done by a respectable house.

We do not claim patronage for Irish houses, as we have already stated, on political grounds; but we claim that the money raised in Ireland should be expended here, if the work required can be had as well done (we will not say as cheaply) as across Channel. Cheapness is no test for goodness. Cheap printing, like every other species of cheap workmanship, is often very nasty workmanship, and there are wretchedly turned-out publications in printing and paper in London as well as in many towns in Ireland.

Talking of sentimentality, we do not expect men in these days to be guided by it; but the sentimentality that is ignored, and justly so, in one instance, we find is encouraged and fostered by those who protest against it. It was the sickly sentimentality of our Irish professional men, the gentry and the nobility of Ireland, that led to the destruction of important branches of native enterprise. It was the yearning after Paris fashions and London mint-marks that starved out our organ and piano trade, our coach-building, our glass and pottery and printed linens, and scores of other industries once rife.

It was not a sensible sentiment or exquisite desire to encourage home products, but an affectation of foreign intercourse and importance. "Our foreign relations" were encouraged because distance added enchantment to the view. Encourage home trade if it suits your pockets, but do not cease to patronise it because it is not fashionable. Make it fashionable by your encouragement, gentlemen of Ireland, and you will soon find that by its success you will be better and more satisfactorily served.

London publishers, and theatrical managers, and newspaper proprietors are beginning to find that Irish plays, Irish novels, and Irish subjects, pictorial and descriptive, are attractive, and they are at this moment developing the field.

Cannot, then, we Irish newspaper proprietors, journalists, doctors, architects, engineers, and others, remembering Charlemont's words, say—"Ireland must be served in Ireland." While reciprocating the friendly intercourse of foreign nations, we can, without being unjust to ourselves, be just as well as generous.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I am proprietor of an Irish periodical. I am National in my tastes, but not enough so to sacrifice much money and comfort for the pleasure of doing business with my compatriots. I print in London. Hear the reason why.

Once on a time I was foolish enough to wish to print for myself. I took a good house, in a good situation, and purchased a perfectly new stock of the newest fashioned type from the first founder, a machine which obtained while in my possession a prize medal, and a first-class steam engine. Having sunk about as nearly as possible £863 in plant, I discovered I could not get on, and I decided to contract for my work. I asked for tenders from first-class Irish houses, selected the lowest, which was from a wealthy firm, and agreed with them to take my stock at a valuation of arbitrators. A regular legal contract for five years was drawn up, and meanwhile the valuation of my plant proceeded; but before the deed was ready I got a hint that the result of the valuation might be the reverse of satisfactory to me, so I adjourned the signing of the deed pending the verdict of the arbitrators. Fortunately for me that I did so, for in a few days an award was made of £144 for my plant, which, be it remembered, cost, a year before, with all discounts for cash deducted, £863, was, some of it, not yet unpacked, and the rest as good as new, and had been valued by a London trade valuer at nearly four times the arbitrators' award. Rightly or wrongly, I considered that the arbitration had been "managed," and I at once broke off the contract negotiation.

Well, to continue my story: a few days afterwards I was in London, and as I gave vent to a growl of annoyance to an English friend, said he, "Why don't you try — and Co., of London? It will cost you nothing to go to them and tell them what you want, and they will estimate for your work, and may be you will find that you can save money by the change." I went, put on paper my require-

ments, and on my breakfast-table next morning had an estimate £160 a-year less than any tender I had in Ireland. In an hour I had seen the principal of the firm, and bargained to give him a five years' contract, on condition that he should buy my plant for £500. Four years have elapsed, and as regards workmanship or business transactions I have had no occasion to regret my contract.

Perhaps I am not entitled to judge Irish printing contractors by this example; but I do think that nationality has no right to expect more than that Irish firms should have a refusal of Irish contracts if they can do, in every respect, as much for Irish customers as English contractors can. If they are not able to do so, no sentimentality will induce business men to lose time and money in dealing with them.—Yours, &c.,

AN EDITOR.

THE RESTORATION OF CHRIST CHURCH CATHEDRAL.

THE necessary removal of the southern wall of the nave is being proceeded with, which is to be rebuilt in style to correspond with the northern side. The work of restoration will be proceeded with regularly, and the clerk of works, to whom is committed the task of carrying out the architect's instructions, is in every way competent to fulfil his duties, with credit to all concerned.

A visit since our last publication has afforded to us proof of the care that has been taken to guard against accidents, should they present themselves, and the workman-like way with which the preliminary operations have been executed. The history of Christ Church and St. Patrick's is associated with historic and memorable names, but we question if among all there will be two names that will be more entitled to the loving gratitude of our posterity than that of Benjamin Lee Guinness and Henry Roe, the great merchant princes of Dublin, whose munificent gifts towards cathedral restoration and public charities have made memorable the Irish annals of the nineteenth century.

IMPORTANT NEWSPAPER ACTION FOR LIBEL.

LATIMER v. "WESTERN MORNING NEWS" COMPANY.

A VERY important newspaper law case was decided a few days since at the Bristol Assizes, in which the proprietor of the *Western Daily Mercury* sought to recover damages against the *Western Morning News* Company.

Both papers are published daily in Plymouth, and for some years a strong rivalry has existed between them. Like some of our London morning contemporaries, the Plymouth journalists claimed respectively to have "the largest circulation." Jealousies once generated, grew in strength, innuendoes were thrown out, and challenges given. The proprietor of the *Western Daily Mercury* submitted his books to a public accountant, and proved that he had a large increase of circulation over his rival. The *Western Morning News* did not relish this fact, and statements began to be made in its columns that a species of "spontaneous advertising" was resorted to by the *Mercury*. Among other charges made in the *Morning News* was one that the proprietor of the *Western Mercury* was "obtaining money under false pretences."

In strict justice to both sides, we must say that Mr. Latimer was justified in clearing his character, and if in the opinion of the jury he was entitled to damages, he had every right to obtain his verdict to that effect. To accuse a public journal of resorting to the fraud of putting in certain advertisements without being ordered, and of then demanding payment for them, is rather a criminal charge, and if it could be proven it would certainly not redound to the credit or character of the *Western Daily Mercury*.

After a long and patient investigation before Mr. Justice Brett, and what appears to us to have been a very painstaking and intelligent jury, the case of libel was proved, and damages to the amount of £400 awarded.

In expressing our opinion, we have no personal bias on either side. As a newspaper action it has an interest for us, for it is difficult for us journalists to avoid, at some time or other in our career, being unwillingly dragged into courts of law, not only to defend our characters, but to obtain our just claims. We like to see honest rivalry between newspapers—the rivalry that begets good journalism and well-earned popularity. We detest, however, cant, innuendo, reckless assertion, and that description of slander so common and so damnable, not expressed in words, but left to be inferred from a non-sufficiency of them. When will journalists find it their interests to work in harmony, yet each working in his own particular groove? Persistent newspaper quarrelling never yet served the interests of any journal, though it is foolishly supposed if one newspaper can get up a paper warfare with another, its circulation is sure to be increased. Newspaper fights do not last for any considerable period, and when they are protracted the public immediately sicken of both sides. Honest warfare, which means honest criticism, is needed; but we cannot endorse that kind of criticism injudiciously indulged in to the injury of journalism in general and the *Western Morning News* in particular.

SHALL CROMWELL HAVE A STATUE?

Inscribed to the Author of "Sartor Resartus."

Some thirty years ago, dear Tom,
The Press (at least a quorum),
"Senex," "Verax," "Omnium,"
Were storming Church and Forum.
What do you think they wanted then?—
The Pledge of Father Mathew?
Not quite; they wished to know, and when,
Would Cromwell have a Statue?
But thirty years have gone and more,
And we are grown grey-headed,
And poor "Old Noll" lies as of yore,
Half blessed, half cursed, and dreaded.
The House of Commons "have no room"
Except the lobby—that you
Knew as well as I or Hume
Was not for Cromwell's Statue.

A king still rides at Charing-Cross,
And looks quite grey and gritty;
A king near-hand played pitch-and-toss,
And fell, and gets no pity.
The fallen Rex of Lester-square,
The butt of every brat you
Find, that knows he's tumbled there,
Is still a public Statue.

The Iron Duke before the Bank,
Though graven, still mounts his charger.
King William poised still proves his rank,
And Peel, whose shade grows larger;
Peers, parvenus, kings and lords.
Who've made in war a battue
Of mankind, and eat their words,
Are honoured with a Statue.

Up, Ayrton, Up! Nemesis comes;
Cease, Bruce, your sublime twaddle,
For Cromwell, long beneath the slums,
Will stand no plaster model.
Oh, out on ye! Out on them, Tom,
Or else, when dead, they'll patch you,
And cast you by a model from
The new Westminster Statue.

CIVIS.

CORRESPONDENCE.

THE CARPENTERS' STRIKE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—An official communication under the above heading has apprised us, through the medium of the daily papers, that this most devoutly-to-be-wished-for consummation has come to pass, and that the sages and councillors who directed the movement for more than seven weeks are hopeful that "if any ill-feeling arose through the excitement of the protracted struggle, now happily at an end, to will be for ever buried in oblivion." Through the same channels it is hinted that these official sages might have gained as favourable terms on the second day after the strike, but whether through obstinacy, incompetency in directing the movement, or a want of foresight and penetration, the struggle was "pro-

tracted," as I believe, unnecessarily, thereby entailing a loss upon the country generally, but more particularly upon those who placed confidence in these officials. It is, no doubt, easy to pen a couple of sentences calling for the interment of all ill-feeling, &c.; but, looking at the matter from a more serious point of view, will it be as easy to discharge the debts contracted by those who acted upon the advice of these officials, who, by their stubbornness, or, worse still, a paltry feeling of selfish ambition to gain popularity amongst the men, have been the sole cause of an immense amount of suffering? Let the wives and children of the strikers answer. Nay, I believe that if the wives of these same foolhardy individuals who were loud in praise of those would-be famous councillors, were to hold a meeting, it would be seen that their husbands were cajoled and bamboozled into the belief that they—the men who now call for forgiveness—were not acting for the good of the society. It would also be found that these men who cry "forget and forgive" suffered no personal or family loss by the movement which entailed upon their less fortunate mates an amount of worry and vexation, not to speak of anxiety and trouble, which no excuse can justify. Besides there is the humiliating recollection of their having been compelled to visit the pawn-office, or appeal to the huckster for the means to assist them through the struggle, which I have no doubt they will agree with me was foolishly protracted. So sure am I of the support of the tradesmen's wives in the matter just mentioned, that if it were possible to call them together every facility would be given them in order to test the soundness of the advice which I ventured to give on the first intimation that a strike was inevitable. One of the great evils which threaten to swamp this apparent intelligent body of men is the bitterness with which they direct personal attacks against one another, although they have adopted the pledge of brotherly love and friendship. Small as the community is, its members find time for personal abuse, and partyism seems rampant amongst them. Some advice has already been given to carpenters, and now I would presume to offer a little of the same commodity to their masters. The action of many employers, unwittingly, no doubt, puts in the way of some of the officials of the carpenters' and other societies the means of doing a little bit of jobbing, and thus are parties to the encouragement of strikes, &c. From what I have learned during my brief acquaintance with many of their members, it appears that power is given to the secretaries of trades, by the order which is generally sent to them for men when their services are required. The secretary, having obtained the order, chooses his own favourites, or as many of them as are in want of work, and sends them to the builder requiring the hands, consequently, through these means, secretaries wield a power which, on occasions, turns the tide in their favour, no matter how foolish or unscrupulous the subject may be. To remedy this evil I would simply suggest that builders, when in want of men, should advertise in your journal, in order that all unemployed men might have a fair chance.

CHISEL.

WHICH IS THE PRINCIPAL FRONT OF THE CUSTOM HOUSE?

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Will you be so kind as to say in your next publication which is the principal front of the Custom House? There is a dispute on this subject at present, involving a few small wagers, and the parties have agreed to leave the decision to the Editor of the IRISH BUILDER.

August 27th, 1871.

R. B. B.

[In reply to our correspondent, R. B. B. (who omitted to enclose his card), our opinion is that the River front is the principal front of the building known as "The Custom House."]



The Irish Builder & NEW PROVINCIAL BANK & COLLEGE ST. DUBLIN. W. G. Murray, Archt.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE SANITARY CONDITION OF DUBLIN.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In a contemporary Dr. Grimshaw makes the suggestion that any cholera cases which may arrive in foreign ships should be treated in a temporary hospital at the South Bull. I would also view with regret the conveyance of such patients to city hospitals, but I have ascertained that to obtain a Government ship would be enormously expensive, and that in it the poor sailors could not be afforded the best means for recovery. The erection of sheds on the reclaimed ground at the southern side of the Pigeon House-road, about one-third of a mile short of the fort, seems to me the best step, and I feel sure the authorities who own that ground would allow it to be used. Our organization for discovering cholera cases on board of ships is very good, but I am not aware that the neighbouring townships, which infected vessels are more likely to approach, have taken similar steps for inspection. To Dr. Grimshaw's charge of inaction against the Health Committee I may reply, inasmuch as its indefatigable secretary and its inspectional staff have relieved me of all duties except those purely medical. Considering that the committee has not existed five years, I assert that the improvements it has wrought are wonderful. In many English towns where sanitary acts were in force for seventeen years before they were extended to Ireland, the cesspools and other appliances for the disposal of refuse are much worse than ours at present. Many of our tenement houses were found so ill-built that they afforded no space for sanitary accommodation. They were often owned by very poor persons, and inhabited by creatures long confirmed in ignorant and filthy habits. Any reasonable person will allow that it is only gradually this state of things can be bettered, unless the Committee possessed unlimited powers and means, and were heartless enough to render thousands houseless while improvements were being made. When the Committee was empowered by the Sanitary Act, 1866, they found that infectious cases were carried by vehicles belonging to the North and South Poor-law Guardians to all hospitals save Cork-street (to which Dr. Grimshaw is physician). This institution has a vehicle, but it is badly constructed. I agree with him that an amendment in our mode of bringing patients to hospital is called for, and I hope one day to see the New York plan in operation. His complaints of want of scavenging concern another Committee of the Corporation, who can answer for themselves. The mistakes in Mr. Benson Baker's letter were so apparent that the Committee felt that a reply was unnecessary. However, as some public alarm has arisen, and as I am trespassing already, and for this time only, on your space, allow me to expose a few of them:—

1. "Thirteen thousand of the citizens of Dublin suffer from fever annually, of which nine per cent. die." The number of cases for the past twelve months was under 3,500, and the deaths by fever registered were 307, not 1,170, as above inferred. The cases of "fever or other contagious diseases treated in workhouse hospitals or fever hospitals" in all Ireland last year were 13,513, yet this English statistician credits Dublin with that amount. Typhus is rare in Dublin, and typhoid less frequent than in many English towns. When intercepting sewers are working we can hope to abate largely the latter disease.

2. "There is a disinfecting apparatus, but it has not been used for so long that it is out of repair." It is in good order, was used last week, and over 300 articles were disinfected in it during the past month. If the following plan, urged by me in 1866, were adopted, it would be of great service. The vehicle from the Cork-street and Hardwicke Fever Hospitals to carry with the patients their clothes and bedding, and after their admission to hospital to leave these articles

at the disinfecting chamber. After five hours they should be carried back to the patients' dwellings, which often contain nothing else to sleep upon. Neither hospital concurred, it being alleged that they had means for disinfecting.

The true test of a district's pollution with sewage, corporate neglect, and proneness to cholera, is the mortality by diarrhoea. That disease caused 16 deaths, of which 10 were of infants, out of our population of 245,722 during the past four weeks. During the same period it carried off the plague-rate number of 30 out of the 33,892 inhabitants of Christchurch district, Marylebone, London. Yet its medical officer, this young English self-constituted authority, Mr. Baker, is on vacation, lecturing the corporate and medical authorities, and alarming the people of a district which, according to the above test, is 13 times more healthy than his own.

E. D. MAPOTHER.

18, Merrion-square, North,
August 26th, 1871.

SULPHITE OF ZINC AS A DISINFECTANT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As sanitary questions now engage a considerable share of public attention, you will probably allow me to suggest the use of sulphite of zinc as an antiseptic and deodoriser. Some two years ago considerable quantities of this salt were prepared in my laboratory for experimental purposes, and its power of checking decomposition, and of absorbing sulphuretted hydrogen and other offensive gases were then noted. In direct antiseptic energy the sulphite of zinc and the well-known and valuable "bisulphite of lime" are about equal; while as an absorbent of noxious gases the zinc salt is superior. A sufficiently good quality of sulphite of zinc can be prepared at a cheap rate by treating the refuse oxide of zinc, from brass foundries or zinc factories, with sulphurous acid in presence of water. In this case complete saturation is not essential. The dry powdery sulphite of zinc procurable in this way is comparatively little soluble in pure water, though dissolved in large quantity in presence of excess of sulphurous acid, it is inodorous and not liable to rapid change. When it is remembered that in this salt we have combined some of the better qualities of Sir William Burnett's zinc disinfectant, with the well-known antiseptic power of a sulphite, the compound must be admitted to deserve some attention as a sanitary agent.

J. EMERSON REYNOLDS.

Laboratory, Royal Dublin Society,
August, 1871.

THE NEW PROVINCIAL BANK, COLLEGE STREET.

THIS fine building (of which an exterior view is given with this number), has already been fully described in the columns of the IRISH BUILDER. It was erected from designs by the late Mr. Wm. George Murray, architect. Mr. John Nolan was the contractor. The cost was about £36,000. Our readers will, no doubt, remember the litigation which took place after the completion of this building, and which told so favourably to the gentlemen of the long robe.

NEW SANITARY LEGISLATION.

THE LOCAL GOVERNMENT ACT.

MR. STANFIELD has been appointed President of the Local Government Board, and the new law comes into force forthwith. The Local Government Act simplifies in future all sanitary legislation. The Medical Department of the Privy Council and the Local Government Act Office are amalgamated in the new institution, and by being placed in the hands of a member of the Cabinet, we will have a poor-law minister whose duties will combine local government and public health. The

Poor-law Board as a distinct body no longer exists. We trust that the sanitary condition of our towns and cities will soon show a change for the better. If our town boards do not bestir themselves, compulsory measures will force them to do duties which have been long neglected.

Wake up, then, ye somnolent, unsanitary sinners, who mope about our towns and mouth in our public board-rooms! Wake up! for the tocsin of discipline has sounded. Set about setting your homes in order, and thank your stars that "killing was no murder" heretofore in a sanitary sense. The end of your tether, however, has been reached at last, and whether you be fat aldermen, dignified town-councillors, or parish bailiffs, you will have to keep the dirt off the public way. Stop polluting our streams, and ventilate the public sewers as you would your own bedrooms, supposing the decencies of civilized life are not foreign to the most of you.

Thank heaven! at last the law steps in to save our poor from both moral and physical assassins, and that the corporation or local board that neglects to do its duty will receive no quarter. Swift and fast may the judgment it merits be meted out to it, for neglect of sanitary laws means the murder of the people.

BOOKS RECEIVED.

The Workman's Manual of Engineering Drawing. By John Maxton, Engineer, &c. London: Lockwood and Co.

WE must pronounce this an excellent manual not only for working engineers, but for many of the workmen in the building branches. It contains nearly three hundred woodcuts, and seven large plates, most useful, and accurately engraved. To the young architect and draughtsman it will be found an assistance as well as to those for whom it is specially intended. The hints and instructions it gives on drawing in general is admirable, and the clearness of language in which it is expressed adds much to the value of the work.

The work from its very nature is technical, but here technical instruction is simplified, and the craftsman who only understands the rudiments of geometry, will have little difficulty in mastering the instructions and understanding the admirable drawings, projection of shadows, shading and colouring, or the plain directions for drawing from copy or drawing from models, given in Mr. Maxton's Manual.

To the young mechanical engineer the little book will be found an invaluable assistance, and the young civil engineer will find the book in novice barren of information suitable to his profession.

In a word, to the student or workman in civil or naval architecture and engineering, the Manual will be of general use, and we can cordially commend it to the patronage of all.

THE NEW ALBERT BRIDGE.

THE works of the new Albert Bridge in London are rapidly progressing. A timber staging, six feet in width, and stretching from one shore of the river to the other, has just been completed. On the 21st it was inspected by the directors and shareholders of the Albert Bridge Company and several engineers and others interested in metropolitan improvements. The timber piling previously erected in the river has been rearranged to meet the requirements of the altered design of the bridge—which will be upon Mr. Ordish's rigid suspension principle—and the gangway across the river, 710 feet in length, erected in the short space of six weeks. This rapid piece of engineering has been carried out by Mr. F. W. Bryant, whose experience on the Westminster and Blackfriars bridges well qualifies him for the position of constructing engineer to the Albert Bridge. He expects to complete the work of construction by May, 1872, if no untoward circumstances arise.

"DUBLIN'S DIAGNOSIS."

THE above is the heading to an article which appeared in our contemporary the *Builder* on the 19th ult. It seems to have been written by one who, on "the second week in August," "walked through many of the old quarters of Dublin," which, he says, "look more sad and tumble-down and wretched than ever." In "Anna" he found no change! After a few remarks on the scavenging of the city, he proceeds:—

A cry of "jobbery" is very often raised against the Corporation; but it is unfortunate for those who raise it that they do not "smell the rat" in time. Matters of this kind in Dublin are of immemorial repute; but the animals get off with their booty while the ratepayers are napping, and the cry of "Jobbery" and "Justice to Ireland" is echoed by the sinner and the sinned against at the same time and often with one breath. So much for the illusions of the age.

We have already expressed our opinions on the main drainage scheme of Dublin, and with matured ideas and a sober view of matters upon the spot, we must condemn it as a most incomplete scheme. As it stands intact as a corporate scheme only, and working solely as a measure not only designed for the health of the city, but as one intended to relieve the city of its sewage, and to profitably dispose of it, the measure is a failure. It cannot be effective as it stands. It may please the Dublin Corporation to fall back upon the plea hereafter that they only undertook to free the Liffey from pollution by constructing a main-drainage and intercepting sewers, leaving the disposal or distribution of the sewage as a supplementary matter. In that case the citizens need not feel surprised if within the next five or seven years a supplementary or auxiliary loan is asked for and obtained for Job No. 2. Mr. Park Neville, the City Engineer of Dublin, and Mr. Bazalgette, will, no doubt, with their accustomed proficiency in figures, make everything as plain as a pikestaff to the Main Drainage Committee; and the Main Drainage Committee, with the endorsement of the engineers, will "floor" all opposition on the score of wilful expenditure that the ratepayers may initiate.

The police in Dublin—a very active body in political matters, and a very inactive one in other matters—are at present in hot water. Patrolling the street in this weather in the garb of a mailed warrior is not the thing for Pat, whether he be a "polsman" or a "Patriot." The city of Dublin force have donned a new garb, and they look like a military force, save that the bâton takes the place of the bayonet, and that many of the fresh recruits walk very awkwardly in their boots, which are polished, and not greased, as of old.

The new Gaiety Theatre is progressing rapidly, the columnar supports of metal being attached, length to length, as the walls rise. The entrances front and rear will not be very charming or respectable. The former faces South King-street, and the latter opens into Tangier-lane—a narrow and rather dirty courtway at present, near the top of Grafton-street. The theatre is to be opened, by announcement, in November. If so, the work must proceed more rapidly than even now, and outside effect will require to be sacrificed to inside necessities if the promises of the proprietor to the public are not belied. Although the site of the building itself is not very well chosen, it is within a short distance of many most respectable districts looking east and north-east, and several most impoverished ones in a southerly and south-easterly direction. The two extremes of the social scale overlap each other in the immediate vicinity of the new Gaiety, but corduroy and moleskin will be likely to find their entry and exit through Tangier-lane (perhaps), whilst Irish poplin and tabinet flutter at the angle of St. Stephen's-green, and glide in

(perforce) through the central doorway in the purlieus of dilapidated South King-street. It is a curious fact that the old theatres of London and Dublin, like the old places of the people's worship in the latter city, were hidden away from public sight, and could only be approached through nooks and crannies, or at best through the open way of disreputable streets.

It is probably economical consideration that leads some of our modern proprietors and architects of theatres to build them where their architectural beauty cannot be severely criticised, and where their faults as to proper ventilation stand excused on the score that the neighbourhood is a thickly populated one, and every bit of ground had to be religiously utilised for the sitting places of the "gods" and "angels."

It is time there were general rules to prevent the erection of such buildings, except on proper and sufficient sites. Dublin wants a deal of looking to.

[It is whispered that injury to, or removal of, party walls adjoining the Gaiety, is likely to lead to unpleasant results.—ED. I. B.]

TERMINATION OF THE STRIKE IN THE BUILDING TRADES.

THE carpenters' strike is at an end, and matters are amicably arranged. When we went to press with our last issue, the phase of the quarrel did not look very re-assuring, and we feared that we would be still unable in our present number to announce a cessation of hostilities. The meeting convened for the 15th ult. was held, and matters were left nearly as they were. We care not to criticise too closely the action of the bodies concerned, because some of their members indulged in personalities the reverse of polite. The good offices of the Lord Mayor were used to effect an arrangement of differences, the men consenting to a reduction in their demands. He failed, however, in mending matters.

The cause of the dispute, and the efforts made to heal the difference, will be seen in the following correspondence which has appeared in the daily press. The letter of John Stuart Mill is worthy of consideration:—

SIR,—In a conversation I had lately with my employer concerning our strike, to strengthen his opinion on the subject, he referred me to Mr. Hughes, Mr. Mill, and others, who are well-known advocates of the working man, and well versed in the working of trades' unions, strikes, &c. Having written to Mr. Mill, I received from him the following reply, which, at the solicitation of various parties, I send for publication. By giving it space it may help to bring this rather long strike to a happy termination.—Yours, &c.,

JOHN O'SHEA, Foreman Carpenter
at Messrs. Thomas and Charles
Martin's, North Wall.

August 19, 1871.

TO JOHN S. MILL, ESQ.

SIR,—I hope you will excuse me for addressing you, but knowing the interest which you always feel in the welfare of the working man, and from your intimate knowledge of the working of trades' unions, strikes, and their consequences, as there exists a strike here at present amongst the carpenters, on that subject I solicit your opinion. The wages of the "Regular Carpenters" of Dublin for the past thirteen years was five shillings per day, but within that period the prices of the necessities of life have increased in many instances three-fold, and, on these grounds, the carpenters made a demand of sixpence per day from the 3rd inst. The employers, in many instances, refused to comply with the demand, so that the men struck on the 3rd, after which the employers offered fourpence per day advance, to commence on the 1st October, which the men, as a matter of course, refused. One employer in particular has offered to take in his men on conditions of giving them the old rate or five shillings per day, and a participation in the profits of the establishment, guaranteeing them more than they demand. Such a system the men won't understand, and consequently will not accept.—Your obedient servant,

31st July, 1871.

JOHN O'SHEA.

Lucerne, August 9, 1871.

DEAR SIR,—Owing to my absence from England I have only just received your letter of the 31st.

It is difficult for any one who is not on the spot and acquainted with local feelings and the characters of individuals, to advise in the matter in which you ask my opinion. My impression is, however, in favour of trying the experiment of the participation of the work-people in profits—what is now called industrial partnership. That system appears to me both a great improvement in itself and the road to something still better hereafter. You say that the terms offered would far exceed the advance in wages which has been demanded. If this be so, as a strike, when it does not prove a failure, generally ends in a compromise, this kind of compromise seems to be most favourable to the operative.—Yours,

Mr. John O'Shea.

J. S. MILL.

The following letter, addressed to a morning contemporary, tells on behalf of the society their own case, and the satisfaction that is felt on both sides at the conclusion of the strike, which, if prolonged, could only result in hardship to many, and a loss to all concerned. The bitter feelings and hard words, which are the natural result of strikes, we trust are allayed.

Lower Gloucester-street, Dublin,
22nd August, 1871.

SIR,—We wish to inform all regular employers, heads of public bodies, and commercial firms, through the medium of your excellent journal, that the carpenters' strike has now come to a final settlement, through the builders having come to the unanimous conclusion of giving the advance of 2s. per week, the same having been adopted by the artisans at a large meeting held in Gloucester-street on the 21st instant. The established rate of wages from this day forward is £1 12s. per week, by the united consent of Messrs. Meade, Gilbert Cockburn and Son, Millard and Son, Mr. George Moyers, Mr. S. H. Bolton, Mr. Gahan, Mr. Hall, and several others. The eminent firm of Messrs. Meade and Son sent this day as their first order for seventy men to supply their shops and other extensive works which they have at present in course of erection. We are happy to state the strike has passed over creditably to employers and employees, and if any ill feelings arose through the excitement of the protracted struggle for the rights of labour, now happily at an end, we trust they will for ever be buried in oblivion.

B. GAFFNEY, Chairman.

P. M'DONALD, Secretary.

Although we differed on some points from the workmen, and took exception to a certain display of spirit exhibited on the part of a few, we had always the trade's true interest at heart. The animus shewn in the above letter we accept as genuine; and, accepting it as a proof of the workmen's friendly feeling towards their employers, and as an evidence of their own good sense, we trust that it will be long before we will have occasion again to record the occurrence of another strike in the building trade of Dublin. While not denying the legitimacy of a strike under some conditions, we are in favour of arbitration as a means of settlement before adopting the usual and unwise *dernier ressort* still so common.

MORAL JOURNALISM!!! HOW THE PUBLIC ARE SWINDLED.

A FEW days ago at Bow-street, London, a youngman of respectable appearance, named William Henry Walter, of 6, Myrtle-terrace, Ravenscourt Park, Hammersmith, was brought before Sir Thomas Henry, on a warrant obtained by the Treasury, charged with keeping a betting-office.

Mr. Poland conducted the prosecution on the part of the Crown, and Mr. Besley, instructed by Mr. Beard, appeared for the defendant.

Mr. Besley, before the case was opened, begged to state that he had received instructions from his client to plead guilty to the charge, and thus to save the prosecution all needless trouble in the matter. He regretted that he had infringed the law, but he trusted the full penalty would not be enforced when he assured the court that it was the defendant's intention to give up the office at once. His transactions had been very trifling compared with the other establishments which had been prosecuted, his pecuniary means were very limited, and he was prepared to

give an undertaking that he would discontinue the practice for the future.

Mr. Poland said it was right that he should call the attention of Sir Thomas to some of the facts of this case before giving his decision. The prisoner had for some time been engaged in betting transactions in the names of "Baillie and Walter," and had issued circulars and advertisements in those names, although the police had not yet discovered who and where Mr. Baillie was, if there were such a person in existence. Their advertisements introduced a novelty in racing affairs, for they professed to carry on a system of "discretionary investments," and to employ a special commissioner, "one of the best judges of racehorses in England," to assist them in their enterprises. The public were asked to send investments of £5, £10, £25, or £50, and they were furnished with a list of gains realised by subscribers during the past five years. It was really incredible that any section of the public could be found to place faith in such representations, and yet it was known that there had been a very extensive response to their offers, although the private books of the defendant did not show that the investors had achieved anything but the loss of the greater part of their money by their ventures. The extent to which the defendant had advertised his pretensions in country papers might be inferred from the fact that his cheque book showed considerable payments to the proprietors of papers at Cardiff and other towns, including the *Irish Sportsman*, the *Kelso Mail*, the *Reading Mercury*, the *Bristol Mercury*, &c. In most of these advertisements, and in the circulars, the address was given, "62, Jamaica-street, Glasgow," with an intimation that after a certain date letters might be forwarded to "Ravenscourt Park." Probably the fact that the Act of Parliament did not extend to Scotland might have had something to do with the adoption of this Scotch address. The detective officers at Scotland-yard had tested the matter by sending post-office orders to the address indicated, directing the money to be invested in backing a horse for the Northumberland Plate, and they had received replies, with vouchers, &c., to shew that their orders had been attended to. It came to their knowledge that the business was really being carried on at Ravenscourt Park, and the prisoner was taken into custody there with documents in his possession proving that such was the fact, the engagements extending from £5 to £500. Under these circumstances there was no ground to exempt the defendant from the penalties of the Act, his infringement of the law being precisely similar to that for which Messrs. Wright, Morris, and others were fined £100 each.

Sir Thomas Henry said it was hoped that the case of Mr. Wright would have served as a warning against the repetition of the offence. Unfortunately it had not had that effect, and he should order the defendant to pay the same penalty, £100, or be committed for six months.

The defendant said he thought he should be able to pay the fine.

In justice to one journal mentioned above, the *Daily Telegraph* has published the following disclaimer from the proprietor:—

TO THE EDITOR OF "THE DAILY TELEGRAPH."

SIR,—At the Bow-street Police-court, on Saturday, William Henry Walter was convicted of keeping an illegal betting office. In your report of the case it is stated that his cheque-book showed considerable payments to the proprietors of papers for advertising his pretensions, and amongst other journals is mentioned the *Reading Mercury*. Will you allow me to state that not a single betting advertisement has appeared in the *Mercury*? Many of great length were forwarded for insertion, but they were invariably refused, and the cheques which accompanied them returned.—I am, Sir, your obedient servant,

THE PROPRIETOR OF THE "READING MERCURY."

"Mercury" Office, Reading.

How many more of the above journals are ready to wash their hands out of the nefarious system of plunder they have been so long aiding? It is the proprietors of the

journals who open their columns to betting robbers who ought to be prosecuted and not the betting men. If an advertising facility was not afforded by disreputable newspapers in Dublin, London, and the provinces, the trade of these turf sharpers would at once collapse. We will, probably, in our next issue enter in more fully to the subject, and give an unvarnished exposure of the sporting, betting, and medical quack advertisers, advertisements, and the newspapers in our midst who pocket the "blood money" obtained thereby. We will fearlessly expose the principals and agents, and the commissions paid in this damnable traffic.

One cannot take up some of our daily or weekly journals without a feeling of disgust whilst glancing down their advertising columns, and beholding the pruriency and naked abomination of the announcements. Even in some of our city papers, who act as spokesmen on religious matters, who preach morality to the crowd, this filth is published! One word more for the present—

"MORAL JOURNALISM, BEWARE!"

A DISGUSTED TOWN COMMISSIONER!

At the meeting of the Dundalk Town Commissioners last week, the following letter was read from an old member of the board. It may serve as a hint to members of Corporate bodies in general:—

"I beg to tender my resignation as one of the Town Commissioners for the South Ward, which for a considerable time I have represented, as has my father before me. I feel deep gratitude to my constituents for their confidence and support. I once thought it an honour to have a seat at the town board, but the haste with which measures of the highest importance to the sanitary condition of the town, such as a new cemetery, and the similar haste with which they are abandoned—the gross negligence of permitting a railway company to create a nuisance which will tax the ratepayers fully sixpence in the pound—the factiousness of some, who, to please their caprice or vanity, are depriving the ratepayers of Dundalk of at least ten acres of ground they could have absolutely for the asking—and the want of candour of many of the board, who though present, permitted my motion on Home Rule to pass unchallenged, and yet had the cowardice to stab in the dark, and strain every nerve fruitlessly—to make the monster meeting convened in its support a failure—these and many other reasons have convinced me that the honour of administering local affairs in conjunction with such men is more than questionable. I, therefore, beg to resign my seat at the board, with many thanks for the courtesy I have always personally experienced at the hands of the board.

JOHN P. LENNON.

DEAR GAS AND BAD BURNERS.

THE entire manufacturing population (says the *Glasgow Mail*) are directly concerned in the question which has been raised by the Gas Referees in their recently-published report to the Board of Trade on the construction of gas burners with reference to the principles of gas illumination. The gentlemen who have the investigation of this question in hand are clearly warranted in expressing the opinion that the improvement of gas burners is most important as a measure of sanitary reform. A vitiated atmosphere in a workroom or in a warehouse may prove as deleterious to the health of those who are exposed to it as the stench emitted from a foul cesspool or a badly constructed drain, and there is nothing, we all know, that will more rapidly poison the air of an apartment than the burning of gas. It is not often, moreover, that we have the economy of a measure which will promote our general comfort and health so clearly established as in this case. The Gas Referees inform us that consumers of gas, by simply using good burners instead of bad ones, will obtain from 30 to 50 per cent. more light, while their gas bill remains the same. In the course of their investigations these gentlemen have found that in the offices of two of the London daily newspapers, establishments in which, of course, enormous quantities of gas are consumed, the burners used were so defective

that they gave out only one-half of the illuminating power of the gas which actually passed through them; and several of the burners, indeed, thus tested, only gave *one-fourth* the amount of light which the gas consumed in it should have done. These are certainly startling facts, and their importance is at once established by the fact that the gas rental of London is said to be two millions sterling per annum, and the Gas Referees in this report do not hesitate to aver that taking a very moderate estimate above one-fourth of this sum of £500,000 sterling might be saved simply by the use of good burners. It is not our place here to enter into a discussion upon the illuminating power of gas. This is a scientific question, which seems to have been fully considered by the Referees, and, after what we have remarked in regard to the sanitary and economical bearings of the subject, the conclusions which they have come to will be most carefully weighed and considered. It is remarked in this report that what a boiler is to coal and the generation of steam, so is a burner to gas and the development of light. One ton of coal in a locomotive of the present day generates as much force as six tons did forty years ago, simply owing to the improved construction of the locomotive. In like manner as regards the illuminating power of gas, there are good burners and bad ones, and as in the construction of a boiler the great object sought for is the economical production of power, so in the selection of a gas burner we should look for the economical production of light. To the general public this has unquestionably been a matter of indifference hitherto which the publication of this report cannot fail to amend. Who can resist making some inquiry into a question which involves not health alone but money also? Men are to be found who will risk a fever or an attack of bronchitis, but a loss of five-and-twenty per cent. of gas? never!

CHINESE VISITING CARDS.

VISITING is made a most serious business in China, and every individual of respectability must have a servant to carry and present his cards. A Chinese card is not a white, glazed little bit of pasteboard, but a huge sheet of scarlet paper, with the name inscribed in large characters: the more mammoth-like the character, the more grand and respectable it is. Cards are of several kinds. There is the plain card, a single sheet of scarlet paper, with the name written or stamped nearest the right hand and topmost sides. This is employed on common occasions. Then there is the official card, mostly used by mandarins on visits of ceremony. This is also a single sheet, and it contains the name, preceded by the entire title, written down the centre from top to bottom. Then, again, there is the full card, which is only produced on very grand occasions, such as New Year visits, visits of congratulation or condolence. The full card is folded, and must contain ten folds. It does not give titles, but simply contains the name of the individual written in the right hand and bottom corner of the first fold, prefixed by the words, "Your stupid younger brother," and followed by the words, "bows his head and pays his respects." Where the person visited belongs to a generation senior to the visitor, the latter styles himself, "Your stupid nephew." If to two generations senior, the visitor writes, "Your more than stupid nephew." Should the individual visited belong to a younger generation, the visitor takes to himself the name of "uncle," instead of "nephew," retaining, however, the depreciatory appellation of "stupid." There are still further varieties of self-designation, according to the particular gradations of relationship; but those we have quoted will suffice to give an idea of the punctilious rules peculiar to Chinese visiting. We may add that the card last described is, as a matter of etiquette, always understood to be returned to the visitor; it being, presumably, expensive to leave such voluminous proofs of regard with a number of friends.—*Athenæum*.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION AT WEYMOUTH.

THE Association held its opening meeting at Weymouth, Dorset, on Monday, the 21st ult., at the assembly-room of the Royal Hotel, where the President, Sir W. C. Medlicott, Bart, D.C.L., and the members of the congress, were welcomed by the mayor and corporation in the name of the town. The attendance was large, many of the nobility and aristocracy being present.

After the usual greetings had been exchanged, the town clerk delivered the following address:—

To the President and members of the British Archaeological Association.—Mr. President and gentlemen, the mayor and corporation of the borough of Weymouth and Melcombe Regis beg, in the name of the inhabitants; to welcome you to their ancient and loyal town. They have not many objects of archaeological interest in the borough, but its connexion with the history of the past is very gratifying to themselves, and they have no doubt, from what you will learn during your sojourn amongst them, it will prove as interesting to you. It will be the pleasure of the mayor to afford you all the assistance and information in his power, and the inhabitants hope you will leave Weymouth with many pleasing recollections of your visit.

Mr. Edward Roberts, one of the hon. general secretaries, thanked the town for the reception and cordial welcome which the town had given the association. This was the twenty-eighth occasion on which the association had held meetings in various parts of the kingdom, in order to bring forward materials for history, or to improve, if possible, those histories which had been written, and to increase the number of students in the historical and archaeological relics of the kingdom. By means of a few gentlemen, who were members of this society, who had worked for many years amongst dust and rubbish, they had in their volumes produced materials which had added to the information of English people, and of all those who spoke the English language throughout the world. Dorset, it appeared to them, had never been fairly or properly treated. The one great history of the county was certainly not such a one as the county ought to possess. It was true that a reprint was now being made, containing many fallacies and errors which existed in the original edition, simply because it was desired that a reprint should be obtained, and not an improved edition. This was one of those things which could not be regretted but once, and that was a lifetime. He desired to see a history produced which should be worthy of the county, and hoped that during the forthcoming week many persons would be endowed with the spirit which would induce them to bring forward materials which would lead to a further increase of archaeological knowledge.

The President (Sir W. Medlicott) thanked the meeting for the great honour which had been conferred on him in asking him to preside. At first he felt inclined to shrink from such a responsible duty, knowing how many more able men were qualified to fill the office; but at the same time he should ask the association to give him their indulgence. He hoped that before the week was over he should go away far better instructed in archæology than he at present was. He then at some length read a paper on various objects of interest in the town and county, and concluded by hoping that the association would have a pleasant meeting.

Mr. G. Godwin, one of the vice-presidents, proposed a vote of thanks to the chairman, which was seconded by Mr. Black, and supported by Mr. John Floyer, M.P.

At the conclusion of the meeting the association made a short excursion to the villages of Preston and Osmington, two pleasant places about three miles from Weymouth. The party was under the direction of the Rev. Talbot H. Baker, vicar of Preston, who had caused the Roman tessellated pavement

recently discovered to be uncovered for the inspection of the congress. This relic of the past was found about eighteen inches below the soil. The pavement looks as fresh as if just laid down, although it is presumed that nearly 2,000 years have passed since the period of its accomplishment. That this had evidently been a Roman villa of no mean pretensions there is no doubt, for the bases of rows of columns are still there. Passages and rooms are also discernible, and there is every reason to believe that it is one of the finest specimens of Roman architecture that we have in the county. The spot seems to have been a Roman town, for the whole space is filled with the remains and traces of our forefathers. The congress then proceeded to view Preston Bridge, and afterwards inspected the splendid collection of antiquities at Captain Hall's residence.

In speaking of the attractions in store for the visitors, one of our London contemporaries wrote:—"Although the town itself has not many objects of interest for the archaeologist, perhaps no county is more rich in antiquities than Dorsetshire, and a visit of the congress to the west will no doubt be a source of pleasure and profit to the archaeologist who delights to revel in the mementoes of the past. Amongst these, and which certainly must take the preference in the various objects of interest, may be mentioned the remarkable and stupendous earthworks at Maiden Castle, the Druidical circle at Winterbourne Abbas, the remains of the Benedictine Monastery at Abbotsbury, Portland, with its varied attractions, Cerne Abbey and the huge giant cut on the hill side, various churches in the neighbourhood, the Cistercian Abbey of Bindon with its pleasant ruins, the ancient earthworks of Wareham, and the stupendous relics of the past in Corfe Castle. The gentry in the county have very kindly offered to throw open their residences, so that the association may view the splendid collection of antiquities which many of them possess, and we doubt not the members will long have occasion pleasantly to recollect their visit to this county."

The above places were visited, and enjoyment and hospitality was experienced on all sides by the members of the association and their friends.

A CONVALESCENT HOSPITAL.

By the will of the late Michael Bernard Mullins, C.E., legacies amounting to £5,600 have been given to several hospitals and charitable institutions. The residue of his property is left on trust to build and endow a Convalescent Hospital near Dublin, to be called "Mullins' Hospital."

THE AMALGAMATED SOCIETY OF CARPENTERS AND JOINERS, LONDON.

A DISRUPTION has taken place in the above society, which for many years has been one of the most influential trade organizations in Great Britain. The general secretary of the society was Mr. Robert Applegarth, who was elected and supported chiefly by the suffrages of the provincial branches. His appointment recently on the Contagious Diseases Act Commission gave rise to some complaining on the part of the London members, on the ground that Mr. Applegarth could not attend to his duties as general secretary and at the same time to the work of the commission. Eventually these complaints led Mr. Applegarth to send in his resignation, which was accepted by the Executive Council of the society. There are, it seems, in all, 242 branches, and 11,000 members, of whom only 2,500 are in London, and the result of the course taken by the Executive Council is that the provincial branches have set up a rival executive, with head-quarters in Manchester, and a disruption exists in the society. The London Council hold possession of all the books, documents, and property of the

society, and at a meeting held last Saturday, after consultation with a deputation from the country branches, who still acknowledged the London Council, it was resolved to issue a circular to all the branches throughout the country, requesting them to inform the Council, on or before the 25th inst., whether they intend to secede from the society or not. This circular was issued on Monday last. The seceding branches, who will probably comprise a numerical majority of the society, will thereby forfeit all trade or benefit claims upon the invested funds, which amount to a large sum. This point, however, will probably be contested in a court of law.

THE CARPENTERS' STRIKE.

WE have been requested to allow the following letter to find a place in our columns. It has already appeared in one of the Dublin dailies:—

SIR,—In your journal of Monday you report a case, *Parker v. Kane and M'Donald*, which is far from correct, introducing an amount of matter which did not take place, and omitting most important parts of the transaction. You will permit me to state the facts, as otherwise your report is calculated to compromise me. I summoned Kane for threatening language and assault, and M'Donald for abusive language and challenging to fight. M'Donald is the paid secretary to the Gloucester-street carpenters. The cause assigned by the above parties to justify their violence was that I wanted their community to accept the offer made them by the employers of two shillings per week of an advance. I did advise them to do so, and now after seven weeks and two days on strike they have accepted what they could have had on the second day. The upshot of the trial was that Kane got three months' imprisonment, or £5 fine, and M'Donald was bound to keep the peace, himself in £50 and two sureties in £25 each. I was not accused of writing "anonymous letters to the heads of the trade," nor did I "admit having written to some of the employers with reference to the strike." The magistrate's advice, as you report, is quite correct, that he will send for trial any attempts at violence of a similar sort occurring again. THOMAS PARKER.

August 22nd, 1871.

NOTES OF WORKS.

The Bethel Church, Kingstown, was reopened on the 24th ult. The alterations are so extensive that it may almost be considered an entirely new building. Mr. John M'Curdy was the architect, and Messrs. Beckett the contractors. Cost about £2,000.

The Board of Public Works require tenders up till the 25th inst. for erecting Coast-guard Stations at Teelin, County Donegal, Seafield, Co. Clare, and Derkmore, Co. Sligo; also for works at the Constabulary Depot, Phoenix Park, till the 18th inst.

The Directors of the Midland Great Western Railway propose building some fifty or sixty cottages for labourers at several of the stations on their line. Tenders are required by the 5th inst.

Alterations are about to be made at Naas Courthouse, according to plans by Messrs. Brett, St. Stephen's-green.

The old St. John's Bridge, Kilkenny, is soon to be replaced by a new and handsome structure of iron arches and stone pier and abutments, from the designs of Mr. Peter Burchaell, County Surveyor.

THE COOMBE HOSPITAL.

FOR many years past the names of the late Sir Benjamin Lee Guinness and of Sir Arthur Guinness have been closely connected with every interest of this charity. Shortly before his death, Sir Benjamin Lee Guinness contributed the munificent sum of £2,000 for the erection of an additional wing to the main building of the hospital. Owing, however, to serious legal difficulties in connexion with the ground on which it is to be erected, the beginning of the work has been delayed up to the present; but we are glad to be able to say that those difficulties being now hap-

pily and effectually overcome, the work will at once be proceeded with. During the interval the guardians and directors, with a view to the isolation of the cases of infectious disease arising in the lying-in wards of the hospital, and to afford accommodation for the treatment of diseases peculiar to women and children, determined on the erection of a large detached building on a plot of ground immediately adjoining the hospital, in Brabazon-street, in which, in addition to the above-named all-important purposes, there should be a dispensary, complete with waiting, prescribing, and dispensing-rooms, to meet the large and increasing requirements of the out-patients of the wretched and impoverished district surrounding the hospital. Towards the cost of this building, which is now nearly complete, and will be opened very shortly, Sir Arthur Guinness has contributed the sum of £500.

SANITARY REGULATIONS IN LONDON.

THE City Commissioners of Sewers, with other public bodies, have been asked to assist the Government officials in their endeavours to prevent, if possible, the introduction of cholera into London, and there is reason to believe that some new and stringent regulations, especially with regard to shipping, will shortly be made and publicly notified by the Privy Council. In the meantime the City Commissioners have, by a widely-circulated notice, drawn the attention of inhabitants and owners of houses within the City to the various legal provisions made with a view to prevent nuisances, and consequently disease. It may not be uninteresting to give some of the more important of these provisions, premising that the dustmen in the employment of the Commissioners have been instructed to call at every house at least twice a week to remove dust, rubbish, and refuse of all kinds, and daily to clear out all public dustbins, and cart away the contents. Any owner or occupier allowing stagnant water to remain, or the water-closet to overflow, is liable to a penalty of £2, and penalties may also be imposed upon persons either neglecting the sanitary orders of the Commission, refusing to discontinue any noisome trade after notice to do so, permitting common nuisances in houses, or keeping live cattle in cellars. Butchers or others are liable to a fine of £20 for exposing diseased meat, fruit, fish, or other provisions, and the same may be seized and destroyed. The Commissioners recommend families freely to use chloride of lime and carbolic powder in their houses, and request that everywhere the utmost cleanliness should be observed in respect of the condition of areas, basements, cellars, kitchens, and all dark and damp places. They also warn people not to allow the accumulation of rubbish, and to be careful as to the state of their waterbutts and cisterns. They add that it is not only necessary that the inspectors should diligently perform their duties, but also that the owners and keepers of houses should be more than ordinarily careful in the management of their property.

MISCELLANEOUS.

SANITARY STUPIDITY.—The prevalence of epidemic disease and its ravages are a standing disgrace to the sanitary legislation of England. With all our knowledge of the laws of epidemics, with all our literature on the subject, in spite of our convictions, in spite of the most positive proofs that infection may be checked, if not stamped out, by isolation, permissive laws administered by local authorities, negligent, if not ignorant, of their duties, allow small-pox and fevers to follow their course without more let or hindrance than the precautions suggested by medical attendants or nuisance inspectors, precautions which may be advised, indeed, from a sense of duty, but which they know it will be impossible to carry into effect.—*Food Journal.*

POST-OFFICE STATISTICS.—From the report of the Postmaster-General just issued, it appears that the post cards circulating through the post-offices in the United Kingdom during one week are found to number about 1,668,000—1,374,000 in England, 167,000 in Scotland, and 127,000 in Ireland. During the quarter ended 31st December the newspapers circulating through the post are estimated to have been about 22,500,000, as against 20,000,000 in the corresponding quarter of 1869. There were 862,722,000 letters delivered last year. 108,668,000 newspapers, book and pattern packets, money orders issued to the amount of £19,993,987, and £15,099,104 deposited in the Post-office savings' banks by 1,183,153 depositors. The number of registered letters passing through the post rose from 2,727,763 in 1869 to 3,005,994 in 1870, and of these the number lost was twelve altogether. There was also an increase in the number of Valentines. The total number passing through the London offices is estimated to have risen from 1,418,841 in 1869 to 1,545,755 in 1870, and the number posted in London from 1,241,864 to 1,306,201. In London alone during the past year about 10,565,000 yards of string were used for tying up letters for the country, and about 17,637lbs. of sealing wax for securing the bags in which the letters were contained, the bags in use being about 700,000 in number. In England and Wales the quantity of ink supplied for impressing post marks on letters, and for obliterating postage stamps, was about four tons, and the number of forms employed, exclusive of anything in the nature of a book, amounted to 20,692,800. Since July last all stores for the country exceeding 5lbs. in weight, which used to be sent by the mails, have been despatched to their destination by luggage train and paid for at parcels' rates. The stores so forwarded during the nine months ended the 31st of March exceeded 114 tons in weight.

THE NEW POSTAL RATES.—Orders are published in the *Gazette*, directing that the new postal rates shall come into operation from the 5th of October next. The letter rates are to be as follow: the official announcement sets forth:—"On every inland letter not exceeding one ounce in weight, 1d.; exceeding one ounce and not exceeding two ounces, 1½d.; not exceeding four ounces, 2d.; not exceeding six ounces, 2½d.; not exceeding eight ounces 3d.; not exceeding ten ounces, 3½d.; not exceeding twelve ounces, 4d.; exceeding twelve ounces in weight, for the first ounce, and for every additional ounce, or fractional part of an ounce 1d.; provided that the postage be prepaid at the time of posting such letters."

WROUGHT-IRON WORK.—We have on more than one occasion spoken favourably of the iron work executed by Mr. Fagan of Great Brunswick-street. Within the past few days he has completed at his works a fine pair of wrought-iron gates, ten feet wide, the perpendicular bars of which, sixteen in number and six feet high, are capped with polished brass balusters. The work will be mounted on granite pillars, and is intended for St. Patrick's Roman Catholic Church, Moate, the designs for which are by Mr. W. F. Calbeck, F.R.I.A.I.

THE MASONS' STRIKE AT BERLIN.—At the commencement of the strike, says the *Weser Zeitung*, 6,000 masons left work. Of these 2,000 mostly unmarried men, have left Berlin, and about 800 have resumed work on the old conditions. Only seven of the 287 builders and master masons of Berlin accepted the proposals of the workmen's committee, and the chief of these have since withdrawn their concessions, and are resolved only to employ masons on the old conditions. It is estimated that the strike has already cost the workmen about 20,000 thalers wages. According to their own statements, the money paid them in support of the strike amounts to not more than a sixth of this sum. The committee has only been able to give one thaler a week to each family, and 7½ groschen extra for each child. The statement that the London "Internationals" have voted 15,000 thalers in support of the strike is not considered trustworthy.

MEDICAL ASPECT OF STRIKES.—We can scarcely hope to influence the bold workmen in various part of the country who are bent on such a determined struggle for higher wages and shorter hours of labour. Fine physiological considerations will have little weight with men who can hear the pangs of hunger for weeks together, such as are implied in the receipt of a sum of money per week from a trades' union about half that which they might gain per day by resuming their work. There is something to admire in this determination in men who do not dislike work for its own sake. We may venture, however, to ask the men on strike if they have fully considered the influence of a prolonged short allowance of the necessities of life on the women and the children that are dependent on

them. Already we understand that in Newcastle the distress of families is great. But what we would impress on the workmen is this—that the consequences of the starvation which they are imposing on their families will be seen long after the strike is over, in the form of sickness. To say nothing of epidemic disease, constitutional weaknesses will be generated where they do not exist, and will be intensified where they do. And, if this strike is not soon ended, men will resume their work (when they do resume it) with impaired physical strength, and an additional amount of sickness in their homes, for which a little additional wage or a little shorter work-time will only poorly compensate them.—*Lancet.*

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

STEAM MACHINERY.—One of the latest applications of steam machinery is to the manufacture of clocks and time-pieces, and in large specimens, such as the Great Clock manufactured by J. W. Benson for the International Exhibition, its use is found to be of the greatest service. Not only is the work turned out with greater truth than if cast or cut by hand, but a great saving of time, labour, and expense is also the result; and Turret Clocks, which but a few years ago were excessively dear, can now be obtained at a very much reduced price. J. W. Benson, of Ludgate-hill and Old Bond-street, London, by means of steam machinery, produces not only such clocks as that in the Exhibition, valued at 2,000 guineas, but also the strong and accurate timepiece for the village church or school, at fifteen guineas. His manufacture also includes all kinds of carriage, railway-station, musical, and chime clocks, and those for ordinary use in the shop, warehouse, or office. Benson's Illustrated Jewellery, Chain, Watch, and Clock pamphlet contains a full and carefully prepared price-list of every description of clock and timepiece, with a short and interesting history of the art of clockmaking. In it will be found a great variety of patterns of ornate and bronze clocks suitable for the drawing and dining-rooms, the library &c., and it will be sent post free for two stamps.

A. & R. THWAITES & Co., 57 Upper Sackville-street, mentioned in our leading article, are, besides being importers of all foreign waters of character, the specially-appointed agents for the Springs of Vichy, Pullna, Friedrichshan, Harrogate.

BANKRUPTS.

James Gargan, Bundoran, County Donegal, builder, grocer, and spirit dealer, to surrender on 8th and 26th September.

INSOLVENTS.

To be brought up at Belfast, 25th October, 1871—William Cannon, late of Ballyclare, County Antrim, carpenter.

TO CORRESPONDENTS.

M. C. D.—There is a variety of species of the pine, several of which possess valuable properties as articles of commerce. Some are indigenous to Great Britain, which yield the common turpentine, such as the Scotch fir or wild pine. Before "the fall of the leaf" is the best time for felling some timber trees required for building purposes. Those of the evergreen kind must be determined by their possible age, which can easily be approximated, by the initiated, by certain marks or rings. Larch is a kind of fir; it yields a superior description of turpentine known as Venice turpentine, and also excellent charcoal. It will grow in almost any kind of soil or poor land. Incisions are made in this tree in its growing state, and vessels are placed beneath to receive the sap or turpentine that exudes. The bark is also used for tanning leather, but it is inferior to the oak bark. In our next issue our correspondent will find further information upon the subject, as we intend to give an article on useful timber trees and their properties. Among the list will be those indigenous to those islands as well as those of foreign growth.

A Well-Wisher—Your wishes are not unlikely to be gratified. We are hopeful of perfecting arrangements by the new year for bringing out the *IRISH BUILDER* weekly, instead of fortnightly as at present.

J. B.—Gandon, the architect, died in the village of Lucan, and is buried in Drumcondra Churchyard, near Dublin. See Mulvany's Life of the architect for other particulars. The book is out of print, but it ought to be had in any respectable public library in the city.

"Strike, but Hear"—A very good motto, friend; but "Look before you leap" is more to the purpose. We are always ready to give a bearing to any grievance, and assist in honestly removing it; but some self-willed people believe that it is impossible for men to agree to differ, and yet be friends.

An Architectural Assistant—On the 1st of January, 1859. To your second query: in last year's volume you will find the articles you enquire about.

Lagan—Send us a photo., and if we consider it desirable, and of sufficient public importance, we will attend to your wishes.

Edward Smyth, Sculptor—Information is desired concerning John and George Smyth, the son and grandson of the above celebrated sculptor; also of other members of the family, and their latter-day vicissitudes.

T. F., Darwen—Your good wishes are reciprocated. We are always ready to assist earnest and honest efforts; and our censure or praise is not regulated by the social status of the man, but his individual moral worth.

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ILLUSTRATION:

SHOP FRONT ARCHITECTURE IN DUBLIN.
MESSRS. KERR AND SON'S NEW WAREHOUSE,
CAPEL-STREET.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

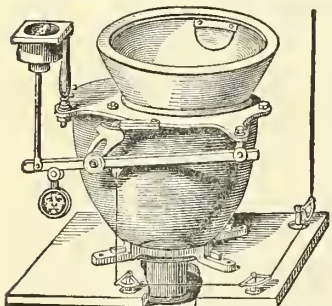
We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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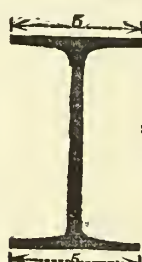
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Earley and Powells have added to the above mentioned
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The Irish Builder.

VOL. XIII.—No. 282.

The Battle of the Bridges.



HERE George Semple and James Gandon to revisit the scene of their early architectural labours, how astounded would not they be to behold the dwarfed public spirit exhibited by our corporate authorities! The re-building of Essex Bridge—the work of Semple—was, in its day, no small feat of mechanical and architectural boldness, considering the great difficulties that lay in the path of its architect, and the sparse engineering facilities he could then avail himself of. In his Diary, Semple tells us what these difficulties were, and on reading his simple and unadorned narrative we are impressed strongly that the man must have possessed a most persevering spirit, and an unflagging fixity of purpose in prosecuting his labour. The foundations of Essex Bridge were well and firmly laid; and, though not destitute of artistic taste, the crown of the bridge was raised too high above the intercepting street. It was the fashion, however, with bridge builders in the last century, and even in the present, to give what they called a “bold sweep” to their bridges, whether they consisted of one or many arches.

In Carlisle Bridge—the happy effort of James Gandon—there is a considerably less elevation, and more artistic and architectural design. Gandon, however, had greater advantages than our own native architect, and much progress had been made in the art of building in water (*i.e.*, hydraulic architecture) between the early days of Semple and the latter days of Gandon.

Coming to the immediate question at issue—the subject of the alteration, enlargement, or re-building of Carlisle and Essex Bridges,—we desire to be plain-spoken about the matter. Some years have now elapsed since the Corporation invited designs for the alteration or entire re-building of Carlisle Bridge. Several designs were sent in—bad, good, and indifferent. A few possessed special peculiarities to recommend them. Some were of iron, others of stone. One engineer spanned the river with one arch, others with two, and more with three. On the other hand, we had architects in our midst who, not wishing to put an impoverished city to a large expense, furnished very good designs for enlarging Carlisle Bridge siderally, and depressing its crown, giving it wider footpaths and vehicular space, and rendering its approaches more easy, at the same time adding much to its ornamentation. Those designs, or a good many of them, were publicly exhibited, and sketched, lithographed, engraved, and photographed; and the Press of the city never ceased speaking of the project afloat while a “waif or stray” could be picked up about the matter. As a calm usually succeeds a storm, so the much-bruited subject of the re-building of Carlisle Bridge gradually subsided. It was rocked to rest or absorbed almost by the agitation anent the Main Drainage. Once or twice, perhaps,

it cropped up, as a ghostly reminder to sinners, who have sinned much in our City Council, but who are not likely to repent on this side of their graves.

Is it not a very proper and pertinent question for us to ask, Why is the subject of the re-building or alteration of Carlisle Bridge shelved, and by what occult wire-pulling and undignified shuffling of cards has the project of Essex Bridge been allowed to ape precedence to Carlisle Bridge? We do not, for an instant, deny that Essex Bridge requires to be lowered in height to facilitate the traffic north and south of the city; but the wants of Essex Bridge should not be allowed to stultify the acts of the Corporation, bring shame on its decision, and humiliation on Dublin.

At a late meeting of the Corporation a letter was read from the secretary of the Port and Docks Board, submitting plans and estimates for the re-building of Carlisle Bridge. The letter also stated that the Board suggested to the Corporation the postponement of the application for a presentment for the work just now, having regard to the present large prospective taxation on the city. Afterwards, a second letter was read from the same Board, recommending the adoption of a plan for widening and lowering Essex Bridge, at the cost of £17,256.

A memorial was also managed to the Lord Mayor to back up this latter project, and members, we might say in a body, lent themselves to vote, thick and thin, for the Essex-bridge alteration.

To the public eye and ear there can be only one explanation for such conduct, and we refrain from stigmatising it in the language it deserves.

If the city cannot afford at present to rebuild or improve Carlisle Bridge, she is equally unable to afford even a smaller sum for Essex Bridge; and if one project should remain in abeyance for a while, so should the other. Not so in the eyes of some interested worthies, who have nerve enough to say anything. So the City Council are asked to pass a resolution to the effect that the improvement of Essex Bridge should be carried out before the question of Carlisle Bridge be introduced.

If the Committee of the whole house report in favour of proceeding with the alteration of Essex Bridge, in face of their former acts, we promise them that not only will this city, but the city of London, ring with their scandal. Who are those busy-bodies who are so intent for the Essex Bridge job? Do they reside on the south side of the river, between Castle-street and Kilmainham? Are they merchants, whose floats, carriages, and wagons have to climb Cork-hill? If so, why not move for the levelling of Cork-hill before the question of Essex Bridge is touched upon? We are neither so obtuse-brained nor blind-minded; neither are our fellow-citizens, in general, that they or we cannot see through this attempted deception.

The city and the Corporation of Dublin is committed to the improvement of Carlisle Bridge. For upwards of twenty years the subject has been agitating the minds of our people, and for the last ten years it has been an intermittent question in the Corporation. Have the Corporation of our city any dignity to uphold, or are they careless of what opinion may be expressed outside doors or across Channel? If the Corporation is indifferent as to its dignity, the citizens as a body of our population are not of their own self-

respect. If the Corporation does not give tone to public opinion in this matter, public opinion must hold them amenable to its will, and insist upon the whole of the forms.

A third project was mooted in our public council some years ago, and advocated by ourselves as desirable—that of building a new bridge further down the river near to the Custom House. If this project will be ever seriously contemplated within a reasonable time, then, in that instance, the expenses attending the alterations or improvements of the other two bridges might be curtailed. We believe ourselves at no distant date a new bridge will be required. The city is gradually though slowly extending on the north side of the river; and Gardiner-street, or some modification of that approach, may yet be made to relieve the traffic of Sackville-street and Carlisle Bridge. There is no second opinion entitled to a moment's consideration that would place the matter of Carlisle Bridge in abeyance a day longer than what could possibly be prevented. We know the city will be heavily taxed for some time in consequence of the new Main Drainage scheme, and other measures; but those who express themselves in favour of retrenchment in one groove are strenuously advocating a serious expenditure of public money in another, for reasons which are patent to every intelligent person. We are determined to watch closely, and scan with judgment, whatever action may in future be taken on the subject. We advocate consistency in public matters as well as architectural, sanitary, and social improvement, and we would be much remiss in our duties if we shrunk from expressing our honest opinion on the clumsy and undignified strategy adopted for the purpose of shelving a long-desiderated improvement, once unanimously agreed upon, and now almost shamefully abandoned by the local parliament of our city.

MUNICIPAL MAL-ADMINISTRATION.

THE way in which public moneys are managed in several of our corporate and local boards demand instant attention. Public bodies in the sister kingdom have lately got into hot water, and have narrowly escaped legal difficulties. Here, in Ireland, we have several corporate bodies, committees and sub-committees of which are in the habit of expending large sums of money in a most unbusiness-like and illegal manner. Instead of advertising for public tenders, orders by wholesale are given to certain favoured tradesmen or personal friends; and, after some thousands of pounds are jobbed away in this manner, special meetings are called, and asked to sanction disbursements already made. Let it be understood at once, that as public journalists we cannot pass over this public fraud; and whenever in future we find public expenditure so conducted, we will fearlessly expose the public bodies and the principal wrong-doers.

At a recent meeting of the City Council a brief report from No. 3 Committee was brought up for adoption. From this unblushing report of disbursements of public moneys we find that almost within a twelvemonth no less a sum than £1,204 2s. 2d. was spent in orders for which no public tenders were invited. Relative to the illegal expenditure, Mr. Byrne made some very pertinent remarks, and concluded by moving the following amendment, which, we regret to say, he afterwards consented to withdraw:—“That, in order to secure that supplies of every nature be pro-

cured economically by the Corporation or its committees, same should be taken from contractors only by sealed tenders (based upon specifications or samples, as the case may be), after public notification of the time, place, and manner, and other particulars thereto relating; and, as any deviation from this mode of obtaining contracts cannot be satisfactory to the vendors of this city who supply like commodities, or to the ratepayers, whose rates the Corporation disburse, the following payments, being instances of such deviations, amounting to £1,204 2s. 2d., be not approved of by this council. Private Committee No. 3, April, 1869 (page 8), curtains, £22 19s. 4d.; do. (page 9), gas-fittings, £32 19s. 8d. July, 1869 (page 12), gas-fittings, £70 9s. 2d. August, 1869 (page 13), printing, £98 13s. October, 1868 (page 15), maps, £7. December, 1869 (page 19), oilcloth, £18 17s. 7d.; 1870, painting (pages 20, 24, 26, 34, 21, 37, 40 and 43) to February, 1871, £333 11s. May, 1870 (page 26), ironmongery, £53 19s. 8d. June, 1870 (page 27), carpets, &c., £98 8s. 6d; do. (page 28), decorations, £80. August, 1870 (page 3), gas-fittings, £38 13s. 11d.; do. (page 31), ironwork, £16 1s. 6d. September, 1870 (pages 33 and 37), plastering work, £61 15s. 2d., and £26 14s. October, 1870 (page 33), plumbers' work, £45 13s. 4d.; do., 1870 (page 34), timber, £95 5s. 5d.; do. (page 46), do., £61 1s. 1d."

We would ask the citizens and ratepayers generally to scan attentively the above items, and when they have done so we would like to know do they feel content that this system of corporate jobbery should go on unchallenged. It has been going on more or less for years in the "Reformed Corporation," and is likely to go on still notwithstanding the shame, and the promise given to amend these things in future. No underhand jobbing contracts can be made by any Corporation, or section of a corporate body, without inviting a public tender. The public body that commits itself in this way renders itself liable to public prosecution. This underhand system of disbursements, in a word, renders every individual member of the Corporation liable to the penalty of not only refunding their share of the outlay to the corporate purse, but to public condemnation besides. The moneys are the moneys collected by rates and taxes from the public, and the Corporation is empowered only to hold it in trust for the use of the public, and expend it in pursuance to certain laws and rules provided for that purpose. No one would object to the occasional outlay of sundry small sums, or to the dispensing with a public advertisement; but the case is quite different when the sums are large, and where a competition would result in saving the public purse.

The outlay of small or large sums is, at the same time, subject to the same laws, and a corporate body cannot be too careful of its actions in those matters. It would be a monstrous injustice, and one fraught with the most gigantic evil, if this covert system of voting away money was allowed to exist. What right has any chairman, member, or secretary of a public committee to hand over an order or orders to any particular tradesman or contractor? One tradesman has as good a claim as the other, and the only way to counteract jobbery and fraud is by public advertisements provided by the law relating to the contracts of public bodies.

It needs no deep insight to be able to point out the obvious consequence of the free and easy manner of managing public funds. Who

can tell the amount of commission that goes into somebody's pocket of the members' friends and relatives that are directly or indirectly served or obliged? On the other hand, what committee of scrutiny exists in respect to the supplies? Does any one examine the workmanship of the gas-fittings, the quality of the carpets or curtains, the description of ironmongery? May not all this be of a most inferior description? Who can tell whether the plasterers', plumbers', or decorators' work is not mere sham work, "done to order," and warranted to last a season? We have ourselves, more than once, looked over some of the workmanship executed for our city council, and we candidly say it would not be allowed to pass muster by many of our small employers of building labour.

The action, as well as the inaction, of our Corporation has been several times recently animadverted upon by our professional contemporaries across the Channel, and we would be much remiss in our duty if we did not candidly and honestly speak our mind upon those matters which are fit subjects for public criticism. We will give credit where it is deserved, irrespective of sect or party; and, where censure is deserved, we will not shrink from a just condemnation of all corporate misdeeds.

ANECDOTES OF THE BUILDING TRADES.

THE professions—the medical and legal—have their racy anecdotes, and even the church, on the part of its members, can be credited with not a few genuine flashes of wit. In the hundred years between the death of Jonathan Swift and Sydney Smith—an Irishman and an Englishman, and two most versatile writers and churchmen—epigrams and anecdotes were rife, and redolent of beauty and power. Upon the rich harvest that was garnered in during that century (1745-1845) we may be said to be feasting since. The last quarter of a century has not altogether been sterile, but good anecdotes and epigrams have been sparse, and the occasions intermittent. The thought has often struck us that a very humorous volume might be compiled of wit and anecdote connected with the architectural and building professions, if some octogenarian worthy, whose life was mixed up with these, were to amuse himself with the labour. In our own wayfarings and practices in the British Islands we have come across abundant evidence of architectural and building wit and humour. In every branch of the building trade numerous anecdotes might be gathered brimful of comicality and wisdom, and not a few of them conveying pregnant morals for occasional application. Many of these witticisms would, no doubt, not possess a general interest, on account of technical phrases being indispensable, but among members of the building art and its cognate branches the point would not be lost. From the storehouse of our memory we will try and turn out a few at random, making no attempt at order or of placing the best first, but writing them down as they occur as reminiscences.

A large employer of labour, who is probably still alive, and who raised himself from very humble beginnings, had a joiner in his employment whom he was very fond of, on account of his cleverness, and also because both were shopmates once, and commenced life together. Andy, as we shall call him, was an inveterate tippler, and for the one week he would remain comparatively sober, he would, on the other hand, be for a whole fortnight drunk. Scores of times his employer forgave him, and bought new tools for him, but these were fated to be pledged again as soon as he "broke out." Andy was an

outdoor working foreman, so he always had an opportunity of disposing of his tools. His employer at last resolved that he should in future work in the shop, where the shop foreman could keep a watch upon him. Another new "kit" of tools was purchased for him of the best description, as he was a first-rate workman when sober. Andy went on for upwards of a week, to the surprise of the employer and all the rest of the workmen, without going beyond the bounds of moderation. One fine morning, when it was thought that Andy was fully reclaimed, he was missed. The day passed over, and it was not until the next morning, when his continued absence excited surprise, that the foreman went over to the other end of the workshop to see if Andy's large tool chest was all right. It was locked, and, taking it by the corner to lift it, it felt quite heavy. Leaving it so, the foreman returned, quite satisfied that Andy's tools were all right, and that some accident or family trouble was keeping him from work. A week passed, but still no Andy made his appearance. "Come," said the employer to the foreman, "we will force the lid of the box, and see are his tools safe." The lid was soon lifted, when, lo! the box was quite clean, and two large screws were driven through the bottom into the floor. "Sold again," said our friend the builder. "How cute it was of the rascal to make it appear that the tools were all right!" On another occasion Andy was told by his forgiving employer to take a couple of labouring men with him from the yard, and to bring his saw and a 10-foot rod, as he required him at such-and-such a place to "shore up" a house-front, and put in a breastsummer. "Bring a good saw, Andy." "Yes, sir." "Because you may," continued the employer, "require to cut an overlength off the balk. Hurry! I will call down myself in the course of the day." When the employer came he found the two labourers holding the beam for Andy, while he was teeming with a drunken perspiration, and striving to cut at the same time an overlength off the heavy balk with a small lock saw about 15 in. long, the beam being about 14 in. square. "Hard work, Andy," coolly said his employer. "Right you are, governor," replied Andy, looking up. "Where the devil is your hand-saw?" "I 'buckled it' with this infernally knotty beam a while ago, so I had to leave it below there in the saw-sharpener's to be hammered." "The old story again, Andy; the pawn-shop and cursed drink. Come, leave this at once; I must send another man in your place. Perhaps I will find something in the shop for you to do, to keep you out of temptation"—"And deliver me from all evil," responded Andy. Amen, amen.

A Quaker—a very old-established builder, of generous nature, but eccentric habits—lived, and perhaps still lives, in a certain part of her Majesty's dominions. Although he employed several foremen, he always personally visited all the jobs, to see how they progressed. He could not bear a drunken workman, or if ever he found one of them smoking on any of his jobs, he was immediately discharged. However, the workmen often used to run the gauntlet, but they usually set a labourer to watch, and to signal danger. "War out," followed by a shrill whistle, was the warning word if the governor made his appearance. He was a remarkably built little man, and one of the old school of builders, which is now all but extinct. He invariably wore a white hat, and the hat was usually sighted in the long distance by the labouring man before the visage of its owner was discernible. One day the men made a successful "kick" on some visitor, and it was agreed that there should be "a glorious spree" among all hands. A labouring man was told off as sentry on the top landing of one of the new houses, while the carpenters, masons, plasterers, &c., gathered into a comfortable room filled with shavings, where they had lit a large fire. After enjoying themselves with drink, song, and argument, they

grew top-heavy, and the majority fell asleep. The sentry on the top landing having got more than a fair share, also fell asleep. Our friend the builder stole a march. Cautiously stealing up the stairs, he was about pressing his hand upon the shoulder of the snoring sentry, when he woke up, and bawled out with all his might—"War out, boys; here's the governor!" As may be imagined, there was a regular "skedaddle" on all sides. The little Quaker never stirred, but, gripping a tighter hold of the half-stupified labourer, he lifted him up on his feet and shook him, saying—"Thee art an unfaithful sentry; thee has been unfaithful to thy trust. I shall forgive all the others this time; I would know nothing about their behaviour had you done your duty. I now discharge thee, and I shall never employ thee again." Remonstrance and supplication were all in vain on the labourer's part. Our eccentric builder never opened his mouth or alluded to the default of the other workmen.

A respectable old maiden lady with some artistic taste in her house and surroundings, required a small deal table made. Old Jack D—, who was accounted a very "handy man," was entrusted with the job. Poor Jack at the best of times, although he had nerve to undertake the most difficult job, could never succeed in properly performing the simplest one. He was fond of his beer; and, being only a jobbing carpenter, working on his own account, he generally drew half of the money, or the whole of it, if he could get it, before the job was begun. Jack, when he finished the small table, brought it home to her ladyship. It is needless to say that it was "framed out of square," and that the glue-joints and shoulder-joints were not very close. Jack, however, made first-rate joints, as he thought, by the use of well-coloured putty. Her ladyship was not to be deceived. Pricking it here and there with a little nail scissors, which she held in her hand, she said—"What's that rasty stuff, Mr. Joiner?" "That's putty, ma'am." "Putty!" said she. "Yes, your ladyship; and that's the best part of the table." "Indeed," replied her ladyship haughtily; and then turned round to hide her smile. "Pray, then, bring home the table, Mr. Joiner, and make it all of putty."

During the early Parliamentary Commission, when the subject of combination and intimidation among workmen was undergoing enquiry, a certain successful builder was examined as a witness. He went rather severe in his evidence against the conduct of the working men. One of the friends of the working men, who was a member of the commission, put a number of ticklish questions to the builder, which roused his temper, showed his weakness, and exhibited his own shortcomings. He made him acknowledge that, when he was a workman himself, some years previous, he was a "stirring stick" in all combinations, was a strenuous advocate for "strikes," and made him even acknowledge that he did not think that he was ever "a first-rate workman." Worse than all, the builder's temper got so much the better of him by the annoying questions put to him, that he blurted out in a rage—"Yes, I can thank my God that I was a botch: only I was, perhaps, I would have never become what I am."

A clever but eccentric scagliola artist, and modeller in plaster of Paris and cements, carrying on business in one of our chief cities, was so indignant at the conduct of a certain alderman worthy in the Corporation, who injured him in a job, that he vowed revenge. The papers would not publish our artist's letters, so he modelled a monstrous Janus, and, cutting off the head of one of his Centaurs which faced the street opposite the public way, he affixed the aldermanic Janus, who was a popular character, and well known. The strange figure attracted crowds opposite Scagliola's yard, and the two visages under one hood was soon recognised. Proposals

for peace were indirectly hinted at, and Scagliola soon got that description of satisfaction which he most required.

An Irish architect, whose particular and peculiar tastes were of matters outside his profession, had one general answer for every builder and foreman who might ask him how such-and-such a part of the work should be done. Our architect was very good at elevations, and what he left out in the detailed drawings he included in some form or another in the specifications. As for working drawings, the builder or his foreman had to follow his own sweet fancy in these matters. Some time the doubt or anxiety on the builder's or foreman's part would be so great, they could not resist asking our architect the question—"How would you like this done," but the architect still as ever answered—"Oh, do it the usual way." On one occasion sufficient "head room" was not provided for in passing down from the landing of a kitchen stairs. The flight had just been lifted in its place and temporarily fixed, when our architect came rushing in from the hall door in the direction of the kitchen. He had hardly passed two steps down of the kitchen stairs, when he felt a concussion on the brain, and found himself sprawling on his back. Gathering himself up—in which he was assisted by the foreman carpenter—his silk hat was found in a collapsed condition, and his frock coat slipped up the back by a protruding brad. "Where's your master? d—n him, the stupid idiot," cried the architect. "Isn't this a pretty way to execute work?" The foreman carpenter calmly replied—"We followed the plans, sir, which you will see on reference." "D—n the plans; didn't I tell you to do it in the usual way?"

A very clever Irish carpenter and first-rate workman, but rather addicted to drink, was employed in the provinces at a certain church in constructing a pulpit for the resident minister. Pat M—, as we shall call him, and his companion were giving the finishing touches to the piece of church furniture, when the minister and another clergyman walked into the church to see how the work progressed. Pat was in the pulpit when the rector entered, and for the purpose of extracting a joke, as Pat was full of witticisms, the minister jocosely said—"Come, Pat, let us have the text of the day, as you occupy the post of honour." Pat instantly put on a look of great sanctity, and promptly replied—"Beloved brothers, it is written in the thirty-first chapter of Proverbs, the sixth and seventh verses—'Give strong drink to him that is ready to perish, and wine unto those that be of heavy hearts.' Beloved brethren, the seventh verse also gives the same good advice in the following words—'Let him drink, and forget his poverty, and remember his misery no more.' In another part of the holy book (continued Pat, with the greatest gravity) I have read—'Let the workman have strong drink that he may be refreshed at his labour.' Now, my dearly-beloved (here Pat looked point blank at the rector and his clerical friend), if I search from Genesis to Revelations, I cannot find a single word about the working man having to pay for it." "Oh! I quite understand you, Pat," exclaimed the rector; "it seems to be the privilege of the employer to pay for the drink." "Bedad, and I'll not dispute the privilege with yer reverence for a moment." After a hearty burst of laughter on the part of the rector and his brother clergyman, Pat was beckoned to come down from his elevated position, and he, with his fellow-workman, received the price of a good substantial treat.

Among all classes of workmen, the strangest traits and eccentricities of character will be found. Workmen have their loves, hates, and hobbies, similar to literary craftsmen, and legal and clerical wits. We have many instances of building workmen becoming architects, artists, and celebrated authors. Some have aspired to the highest situations of trust under the Crown, and eventually

filled them; some have made their names celebrated throughout Europe, and have also made their own coffins, and written their own epitaphs. The writer has known an instance of a building operative making his own coffin some years before he died, and using it in the meantime for a cupboard, by inserting portable shelves in it, which he could slip in and out at pleasure. Scattered through the three kingdoms, there are many quaint epitaphs to the memory of building mechanics, and tombstones, executed by stone masons, that would puzzle our greatest architects to describe. The immortal "*Fecit*" of the artist will survive when the traceried design will be as hard to decipher as the hieroglyphics of an Egyptian obelisk. In the parish church of Ockham, in Surrey, there is (or was) a tombstone to the memory of one John Spong, a jobbing carpenter, who amassed a great deal of money by living a most penurious life. He denied himself all the ordinary comforts of a home, to be able to gratify the strange wish when he died of having a magnificent and costly funeral. The following epigrammatic lines were cut on his tombstone:—

"Who many a sturdy oak had laid along,
Fell'd by death's surer hatchet, here lies Spong;
Posts oft he made, yet never a place could get,
And living by railing, though he was no wit.
Old saws he had, although no antiquarian,
And stiles corrected, yet was no grammarian.
Long lived he Ockham's premier architect,
And, lasting as his fame, a tomb t' erect.
In vain we seek an artist such as he,
Whose pales and gates were for eternity."

One of the most amusing studies to any person who has even a slight knowledge of building matters, would be to watch the conversation and action of a number of building mechanics in the tap-room of a public-house, on pay night. After the second round of drink, questions of technical knowledge crop up, and the relative abilities of one or other workman are tested by the most curious questions. The carpenter or joiner will challenge the bricklayer and mason, and *vice versa*; and arches, and segments, and soffits, will be traced with the finger, dipped in the spilt beer, and shortly the table will be one mass of working drawings. How would you set out the lines, for the summering of such an arch? the bricklayer will ask of the carpenter. "Oh, I can do it," the *chip* will reply; "but you just show me—How would you find the cut of the angle block for an elevated soffit?" "Ask me something else; we don't get out wooden blocks for our work, we do it all in the solid, in stone." "Well, then here's another question—How would you find the centres for striking an elliptical Gothic arch?" "Bravo, Jack," a comrade will cry, "that's putting him to the test." Jack, encouraged by this expression, will not wait for his opponent's answer, but will ask half a dozen of questions in succession, and end by declaring that no one can teach him his business. It is highly amusing to watch building mechanics, under the influence of a little drink, discussing technical matters in connection with the execution of their work. Lines, and angles, and curves, will be traced, and bisected, and trisected, and the ghost of Archimedes and Euclid will be raised from the dead, to play second fiddle in a concert with the late Peter Nicholson. ©

ANTIQUARIAN DISCOVERIES IN LOCH ETIVE.

—Dr. Angus Smith, of Manchester, who has been exploring in a large moss on the shores of Loch Etive for a few weeks back, has discovered the remains of a lake dwelling, the platform of which is 60ft. in diameter, with the dwelling in the middle 50ft. in length by 28ft. in breadth. He also discovered in a large cairn a megalithic structure, consisting of two chambers, each 20ft. in length, connected by a narrow passage nearly as long. The Rev. R. J. Malleton, of Dumbarton, who, along with several others, has visited the remains, believes no other cairn like it has been as yet discovered in Scotland. It allies itself, he thinks, more to that of New Grange, in Ireland, than any other, although it is much smaller. One broken urn and the remains of four others were also discovered.

cured economically by the Corporation or its committees, same should be taken from contractors only by sealed tenders (based upon specifications or samples, as the case may be), after public notification of the time, place, and manner, and other particulars thereto relating; and, as any deviation from this mode of obtaining contracts cannot be satisfactory to the vendors of this city who supply like commodities, or to the ratepayers, whose rates the Corporation disburse, the following payments, being instances of such deviations, amounting to £1,204 2s. 2d., be not approved of by this council. Private Committee No. 3, April, 1869 (page 8), curtains, £22 19s. 4d.; do. (page 9), gas-fittings, £32 19s. 8d. July, 1869 (page 12), gas-fittings, £70 9s. 2d. August, 1869 (page 13), printing, £98 13s. October, 1868 (page 15), maps, £7. December, 1869 (page 19), oilcloth, £18 17s. 7d.; 1870, painting (pages 20, 24, 26, 34, 21, 37, 40 and 43) to February, 1871, £333 11s. May, 1870 (page 26), ironmongery, £53 19s. 8d. June, 1870 (page 27), carpets, &c., £98 8s. 6d.; do. (page 28), decorations, £80. August, 1870 (page 3), gas-fittings, £38 13s. 11d.; do. (page 31), ironwork, £16 1s. 6d. September, 1870 (pages 33 and 37), plastering work, £61 15s. 2d., and £26 14s. October, 1870 (page 33), plumbers' work, £45 13s. 4d.; do., 1870 (page 34), timber, £95 5s. 5d.; do. (page 46), do., £61 1s. 1d."

We would ask the citizens and ratepayers generally to scan attentively the above items, and when they have done so we would like to know do they feel content that this system of corporate jobbery should go on unchallenged. It has been going on more or less for years in the "Reformed Corporation," and is likely to go on still notwithstanding the shame, and the promise given to amend these things in future. No underhand jobbing contracts can be made by any Corporation, or section of a corporate body, without inviting a public tender. The public body that commits itself in this way renders itself liable to public prosecution. This underhand system of disbursements, in a word, renders every individual member of the Corporation liable to the penalty of not only refunding their share of the outlay to the corporate purse, but to public condemnation besides. The moneys are the moneys collected by rates and taxes from the public, and the Corporation is empowered only to hold it in trust for the use of the public, and expend it in pursuance to certain laws and rules provided for that purpose. No one would object to the occasional outlay of sundry small sums, or to the dispensing with a public advertisement; but the case is quite different when the sums are large, and where a competition would result in saving the public purse.

The outlay of small or large sums is, at the same time, subject to the same laws, and a corporate body cannot be too careful of its actions in those matters. It would be a monstrous injustice, and one fraught with the most gigantic evil, if this covert system of voting away money was allowed to exist. What right has any chairman, member, or secretary of a public committee to hand over an order or orders to any particular tradesman or contractor? One tradesman has as good a claim as the other, and the only way to counteract jobbery and fraud is by public advertisements provided by the law relating to the contracts of public bodies.

It needs no deep insight to be able to point out the obvious consequence of the free and easy manner of managing public funds. Who

can tell the amount of commission that goes into somebody's pocket of the members' friends and relatives that are directly or indirectly served or obliged? On the other hand, what committee of scrutiny exists in respect to the supplies? Does any one examine the workmanship of the gas-fittings, the quality of the carpets or curtains, the description of ironmongery? May not all this be of a most inferior description? Who can tell whether the plasterers', plumbers', or decorators' work is not mere sham work, "done to order," and warranted to last a season? We have ourselves, more than once, looked over some of the workmanship executed for our city council, and we candidly say it would not be allowed to pass muster by many of our sensible employers of building labour.

The action, as well as the inaction, of our Corporation has been several times recently animadverted upon by our professional contemporaries across the Channel, and we would be much loath to miss in our duty if we did not candidly and honestly speak our mind upon those matters which are fit subjects for public criticism. We will give credit where it is deserved, irrespective of sect or party; and, where censure is deserved, we will not shrink from a just condemnation of all corporate misdeeds.

ANECDOTES OF THE BUILDING TRADES.

THE professions—the medical and legal—have their racy anecdotes, and even the church, on the part of its members, cannot be credited with not a few genuine flashes of wit. In the hundred years between the deaths of Jonathan Swift and Sydney Smith—an Irishman and an Englishman, and two most versatile writers and churchmen—epigrams and anecdotes were rife, and redolent of beauty and power. Upon the rich harvest that was garnered in during that century (1745-1845) we may be said to be feasting since. The last quarter of a century has not altogether been sterile, but good anecdotes and epigrams have been sparse, and the occasions intermittent. The thought has often struck us that a very humorous volume might be compiled of wit and anecdote connected with the architectural and building professions, if some octogenarian worthy, whose life was mixed up with these, were to amuse himself with the labour. In our own wayfarings and practices in the British Islands we have come across abundant evidence of architectural and building wit and humour. In every branch of the building trade numerous anecdotes might be gathered brimful of comicality and wisdom, and not a few of them conveying pregnant morals for occasional application. Many of these witticisms would, no doubt, not possess a general interest, on account of technical phrases being indispensable, but among members of the building art and its cognate branches the point would not be lost. From the storehouse of our memory we will try and turn out a few at random, making no attempt at order or of placing the best first, but writing them down as they occur as reminiscences.

A large employer of labour, who is probably still alive, and who raised himself from very humble beginnings, had a joiner in his employment whom he was very fond of, on account of his cleverness, and also because both were shopmates once, and commenced life together. Andy, as we shall call him, was an inveterate tippler, and for the one week he would remain comparatively sober, he would, on the other hand, be for a whole fortnight drunk. Scores of times his employer forgave him, and bought new tools for him, but these were fated to be pledged again as soon as he "broke out." Andy was an

outdoor working foreman, so he always had an opportunity of disposing of his tools. His employer at last resolved that he should in future work in the shop, where the shop foreman could keep a watch upon him. Another new "kit" of tools was purchased for him of the best description, as he was a first-rate workman when sober. Andy went on for upwards of a week, to the surprise of the employer and all the rest of the workmen, without going beyond the bounds of moderation. One fine morning, when it was thought that Andy was fully reclaimed, he was missed. The day passed over, and it was not until the next morning, when his continued absence excited surprise, that the foreman went over to the other end of the workshop to see if Andy's large tool chest was all right. It was locked, and, taking it by the corner to lift it, it felt quite heavy. Leaving it so, the foreman returned, quite satisfied that Andy's tools were all right, and that some accident or family trouble was keeping him from work. A week passed, but still no Andy made his appearance. "Come," said the employer to the foreman, "we will force the lid of the box, and see are his tools safe." The lid was soon lifted, when, lo! the box was quite clean, and two large screws were driven through the bottom into the floor. "Sold again," said our friend the builder. "How cute it was of the rascal to make it appear that the tools were all right!" On another occasion Andy was told by his forgiving employer to take a couple of labouring men with him from the yard, and to bring his saw and a 10-foot rod, as he required him at such-and-such a place to "shore up" a house-front, and put in a breastsummer. "Bring a good saw, Andy." "Yes, sir." "Because you may," continued the employer, "require to cut an overlength off the balk. Hurry! I will call down myself in the course of the day." When the employer came he found the two labourers holding the beam for Andy, while he was teeming with a drunken perspiration, and striving to cut at the same time an overlength off the heavy balk with a small lock saw about 15 in. long, the beam being about 14 in. square. "Hard work, Andy," coolly said his employer. "Right you are, governor," replied Andy, looking up. "Where the devil is your hand-saw?" "I 'buckled it' with this infernally knotty beam a while ago, so I had to leave it below there in the saw-sharpener's to be hammered." "The old story again, Andy; the pawn-shop and cursed drink. Come, leave this at once; I must send another man in your place. Perhaps I will find something in the shop for you to do, to keep you out of temptation."—"And deliver me from all evil," responded Andy. Amen, amen.

A Quaker—a very old-established builder, of geuerous nature, but eccentric habits—lived, and perhaps still lives, in a certain part of her Majesty's dominions. Although he employed several foremen, he always personally visited all the jobs, to see how they progressed. He could not bear a drunken workman, or if ever he found one of them smoking on any of his jobs, he was immediately discharged. However, the workmen often used to run the gauntlet, but they usually set a labourer to watch, and to signal danger. "War out," followed by a shrill whistle, was the warning word if the governor made his appearance. He was a remarkably built little man, and one of the old school of builders, which is now all but extinct. He invariably wore a white hat, and the hat was usually sighted in the long distance by the labouring man before the visage of its owner was discernible. One day the men made a successful "kick" on some visitor, and it was agreed that there should be "a glorious spree" among all hands. A labouring man was told off as sentry on the top landing of one of the new houses, while the carpenters, masons, plasterers, &c., gathered into a comfortable room filled with shavings, where they had lit a large fire. After enjoying themselves with drink, song, and argument, they

grew top-heavy, and the majority fell asleep. The sentry on the top landing having got more than a fair share, also fell asleep. Our friend the builder stole a march. Cautiously stealing up the stairs, he was about pressing his hand upon the shoulder of the snoring sentry, when he woke up, and bawled out with all his might—"War out, boys; here's the governor!" As may be imagined, there was a regular "skedaddle" on all sides. The little Quaker never stirred, but, gripping a tighter hold of the half-stupified labourer, he lifted him up on his feet and shook him, saying—"Thee art an unfaithful sentry; thee has been unfaithful to thy trust. I shall forgive all the others this time; I would know nothing about their behaviour had you done your duty. I now discharge thee, and I shall never employ thee again." Remonstrance and supplication were all in vain on the labourer's part. Our eccentric builder never opened his mouth or alluded to the default of the other workmen.

A respectable old maiden lady with some artistic taste in her house and surroundings, required a small deal table made. Old Jack D—, who was accounted a very "handy man," was entrusted with the job. Poor Jack at the best of times, although he had nerve to undertake the most difficult job, could never succeed in properly performing the simplest one. He was fond of his beer; and, being only a jobbing carpenter, working on his own account, he generally drew half of the money, or the whole of it, if he could get it, before the job was begun. Jack, when he finished the small table, brought it home to her ladyship. It is needless to say that it was "framed out of square," and that the glue-joints and shoulder-joints were not very close. Jack, however, made first-rate joints, as he thought, by the use of well-coloured putty. Her ladyship was not to be deceived. Pricking it here and there with a little nail scissors, which she held in her hand, she said—"What's that nasty stuff, Mr. Joiner." "That's putty, ma'am." "Putty!" said she. "Yes, your ladyship; and that's the best part of the table." "Indeed," replied her ladyship haughtily; and then turned round to hide her smile. "Pray, then, bring home the table, Mr. Joiner, and make it all of putty."

During the early Parliamentary Commission, when the subject of combination and intimidation among workmen was undergoing enquiry, a certain successful builder was examined as a witness. He went rather severe in his evidence against the conduct of the working men. One of the friends of the working men, who was a member of the commission, put a number of ticklish questions to the builder, which roused his temper, showed his weakness, and exhibited his own shortcomings. He made him acknowledge that, when he was a workman himself, some years previous, he was a "stirring stick" in all combinations, was a strenuous advocate for "strikes," and made him even acknowledge that he did not think that he was ever "a first-rate workman." Worse than all, the builder's temper got so much the better of him by the annoying questions put to him, that he blurted out in a rage—"Yes, I can thank my God that I was a botch: only I was, perhaps, I would have never become what I am."

A clever but eccentric scagliola artist, and modeller in plaster of Paris and cements, carrying on business in one of our chief cities, was so indignant at the conduct of a certain alderman worthy in the Corporation, who injured him in a job, that he vowed revenge. The papers would not publish our artist's letters, so he modelled a monstrous Janus, and, cutting off the head of one of his Centaurs which faced the street opposite the public way, he affixed the aldermanic Janus, who was a popular character, and well known. The strange figure attracted crowds opposite Scagliola's yard, and the two visages under one hood was soon recognised. Proposals

for peace were indirectly hinted at, and Scagliola soon got that description of satisfaction which he most required.

An Irish architect, whose particular and peculiar tastes were of matters outside his profession, had one general answer for every builder and foreman who might ask him how such-and-such a part of the work should be done. Our architect was very good at elevations, and what he left out in the detailed drawings he included in some form or another in the specifications. As for working drawings, the builder or his foreman had to follow his own sweet fancy in these matters. Some time the doubt or anxiety on the builder's or foreman's part would be so great, they could not resist asking our architect the question—"How would you like this done," but the architect still as ever answered—"Oh, do it the usual way." On one occasion sufficient "head room" was not provided for in passing down from the landing of a kitchen stairs. The flight had just been lifted in its place and temporarily fixed, when our architect came rushing in from the hall door in the direction of the kitchen. He had hardly passed two steps down of the kitchen stairs, when he felt a concussion on the brain, and found himself sprawling on his back. Gathering himself up—in which he was assisted by the foreman carpenter—his silk hat was found in a collapsed condition, and his frock coat slit up the back by a protruding brad. "Where's your master? d—n him, the stupid idiot," cried the architect. "Isn't this a pretty way to execute work?" The foreman carpenter calmly replied—"We followed the plans, sir, which you will see on reference." "D—n the plans; didn't I tell you to do it in the usual way?"

A very clever Irish carpenter and first-rate workman, but rather addicted to drink, was employed in the provinces at a certain church in constructing a pulpit for the resident minister. Pat M'C—, as we shall call him, and his companion were giving the finishing touches to the piece of church furniture, when the minister and a brother clergyman walked into the church to see how the work progressed. Pat was in the pulpit when the rector entered, and for the purpose of extracting a joke, as Pat was full of witticisms, the minister jocosely said—"Come, Pat, let us have the text of the day, as you occupy the post of honour." Pat instantly put on a look of great sanctity, and promptly replied—"Beloved brothers, it is written in the thirty-first chapter of Proverbs, the sixth and seventh verses—'Give strong drink to him that is ready to perish, and wine unto those that be of heavy hearts.' Beloved brethren, the seventh verse also gives the same good advice in the following words—'Let him drink, and forget his poverty, and remember his misery no more.' In another part of the holy book (continued Pat, with the greatest gravity) I have read—'Let the workman have strong drink that he may be refreshed at his labour.' Now, my dearly-beloved (here Pat looked point blank at the rector and his clerical friend), if I search from Genesis to Revelations, I cannot find a single word about the working man having to pay for it." "Oh! I quite understand you, Pat," exclaimed the rector; "it seems to be the privilege of the employer to pay for the drink." "Bedad, and I'll not dispute the privilege with yer reverence for a moment." After a hearty burst of laughter on the part of the rector and his brother clergyman, Pat was beckoned to come down from his elevated position, and he, with his fellow-workman, received the price of a good substantial treat.

Among all classes of workmen, the strangest traits and eccentricities of character will be found. Workmen have their loves, hates, and hobbies, similar to literary craftsmen, and legal and clerical wits. We have many instances of building workmen becoming architects, artists, and celebrated authors. Some have aspired to the highest situations of trust under the Crown, and eventually

filled them; some have made their names celebrated throughout Europe, and have also made their own coffins, and written their own epitaphs. The writer has known an instance of a building operative making his own coffin some years before he died, and using it in the meantime for a cupboard, by inserting portable shelves in it, which he could slip in and out at pleasure. Scattered through the three kingdoms, there are many quaint epitaphs to the memory of building mechanics, and tombstones, executed by stone masons, that would puzzle our greatest architects to describe. The immortal "*Fecit*" of the artist will survive when the traceried design will be as hard to decipher as the hieroglyphics of an Egyptian obelisk. In the parish church of Ockham, in Surrey, there is (or was) a tombstone to the memory of one John Spong, a jobbing carpenter, who amassed a great deal of money by living a most penurious life. He denied himself all the ordinary comforts of a home, to be able to gratify the strange wish when he died of having a magnificent and costly funeral. The following epigrammatic lines were cut on his tombstone:—

"Who many a sturdy oak had laid along,
Fell'd by death's surer hatchet, here lies Spong;
Posts off he made, yet never a place could get,
And living by railing, though he was no wit.
Old saws he had, although no antiquarian,
And stiles corrected, yet was no grammarian.
Long lived he Ockham's premier architect,
And, lasting as his fame, a tomb 't erect.
In vain we seek an artist such as he,
Whose pales and gates were for eternity."

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A VISIT TO WATERFORD.

A FEW passing notes of historic Waterford, jotted down during a recent visit, will not be out of place in the pages of the IRISH BUILDER. During our walk through the city, we saw a little to admire and much to condemn. Our visit partook more of the character of a social and sanitary one than aught else, and our business did not consist of hunting after antiquarian remains unless they fell in our way, but of looking for signs of progress.

We had heard much of the ship-building trade of Waterford, but very little evidence of its activity or existence was apparent to our eyes. The noise and din, the whirl, whistle and booming sound of giant hammer, and the hiss of fire and steam, and the rumbling of endless wheels, and the Babel of indescribable sounds that we so often heard in other huge workshops of the world—the Neptune Works knows them no longer. We look about elsewhere, but nearly with the same result. At the Kilkenny side of the Suir, our eye, after some straining, caught sight of the mirage of a fishing craft, slowly evolving into shape from its skeleton stay-work. “And is this the shipbuilding trade of Waterford?” quoth we. And when we further examined, we exclaimed, “Where is the once noble and enterprising merchants and citizens of whom we often heard so much and knew so little!” Will Mr. Maguire or Mr. Blake, and the other former and present distinguished members for the ancient city answer? Where is all the boasted public spirit of Waterford gone to? Will the worthy Mayor tell us? We pass through the Mall and it is silent; we walk into the Town Hall, but the Council have adjourned after a squabble, and the rooms are echoless; we refer to the local newspapers, but we find that the editorial page is not large enough to “pitch in antagonistically” to “the other side,” and there is no room to supply information to even an “illustrious stranger.” So we master the situation as best we can, and move on in quest of information, and labour hard for it.

A walk through the heart of Waterford is neither pleasing nor agreeable. Decay, poverty, dinginess, and dirt are observable. The streets are narrow, with few exceptions, and they are irregular in base, height, frontage, and style. The lanes and courts are numerous, and mostly nasty and unclean. There appears to be ample work for the enterprising Municipal Corporation of Waterford to do, if they only care to do it. The streets are not half cleansed, and the lanes and courts appear as if they were never visited by the scavenger's cart.

There is an inner harbour and back quay, intended, formerly, for vessels of small tonnage to discharge their cargoes at the landing stages of the warehouses opposite their moorings, or elsewhere. This inner basin winds round a portion of the old town, and is partly formed by the water of a small tributary of the Suir. At low water, hardly anything can be seen in this harbour but one mass of accumulated mud. Its state is a shame and disgrace to the town. Some thousands of tons of river mud must be lying on its bottom in its entire length through the city. The smell it gives forth during warm weather is noxious, and must be productive of illness to those in its vicinity. There are other muddy channels, ditches we might term them, which find an outlet into the Suir, which ought to be closed over or dredged.

Steam communication with England has not done for Waterford what it might be expected to do. But the fault lies much at the door of the Waterford merchants and moneyed classes themselves. Speaking candidly, we believe that the charge of indifference to their own interests may be levelled with a great degree of truth against the citizens of this maritime port. Nature has placed under their hands great advantages, and great sources of wealth are opened to them, which require but a small amount of artificial aid and capital to transform into profitable pas-

tures; but hands are folded and national regrets are expressed over times long departed and never to return. If men are content to act as the agents of everybody else, and have no faith in their own business capacity, why need it be wondered that the “stranger” will steal march into fresh fields of labour, and shear a harvest down for himself with his own sickle?

The hotels of a city are a very good criterion for judging in the summer of what a town or a city gains by an influx of visitors or country-folk in quest of recreation or business. The hotels of Waterford, one and all, during our stay exhibited very little signs of life or animation. With the exception of commercial travellers and the few passengers and tourists who pass *via* Milford Haven into England, and through Waterford into the South of Ireland, Waterford at present cannot boast of much hotel prosperity. On market or fair days, the hotels, from an ingress of country gentlemen and farmers, gain a little addition to their customers. If more powerful steamships, and which could make a quicker passage, were put on between Milford and Waterford, the route would be more often availed of. The passage is an uncertain one, except in the finest weather, and fogs betimes beset the vessels, and cause a delay of some hours. It often happens that the trains that run in connection with the boat, from Waterford to Cork, Limerick, and the central parts of Ireland, have to leave before the arrival of the steamer. The ordinary run from Milford to Waterford quays is about nine hours. A person requiring to get from London to Queenstown, booking through to Limerick Junction, will necessarily have a short delay after his arrival in Waterford. There will be another stoppage on his way to Cork at the Limerick Junction, and, in proceeding from this station in Cork to the Queenstown branch more time will be lost; so it will be found in the end that not much less than thirty hours will be consumed in his trip to Cork or Queenstown.

Even to the South of Ireland, travelling by the Great Western ordinary express train, the Milford Haven route is not the shortest (if we except Waterford). Proceeding by the Holyhead route—mail train—one need not start until 8.25 p.m., instead of 4.50, and will arrive in Dublin within the twelve hours; then, proceeding by the 9 a.m. mail train, will arrive in Cork about 2.25 p.m. This makes a great difference in the time occupied by both journeys: besides the sea passage between Holyhead and Kingstown is only of four hours, compared with that of nine, the present time occupied in the passage by the Milford boats.

Notwithstanding these drawbacks, it will be well worth the tourist's time, who intends to visit the South of Ireland, to proceed by Milford Haven, if only for the delightful view of coast and mountain scenery he will meet on the route.

That there is much corporate neglect in Waterford is undeniable, and that there could be much done by the citizens of Waterford themselves without soliciting a loan from the Treasury to accomplish it, we can safely assert. There are some works the execution of which is above their power at present, we must allow; but with the example of Belfast before them, they could do much to improve their city and its harbour. If these improvements were accomplished, the pretty watering-places of Tramore and Dunmore would be more frequented in the summer time than they are at present. Surely the Corporation could make an effort to replace the present and only old wooden bridge that spans the Suir in the City, by substituting a stone or iron structure. The old oaken bridge has done good service in its time. It was constructed in 1794, by an American architect, named Lemuel Cox, a citizen of Boston, in America. The cost of this structure of wood was £30,000, raised by shares of £100 each.

The tolls of this bridge have amounted sometimes to £4,000 per annum, and we hear that

the shares, some time since, were worth £170 each. This wooden bridge is 832 feet in length, and about 40 in breadth. It has 40 sets of trestles or piers of oak, and a lift bridge is constructed in its centre to afford a passage for boats to pass up the Suir. An inscription painted on a panel on either side tells of its foundation, and the public spirit that led to its erection. The whole structure at present is very shaky, and the sooner it is replaced the better it will be for both the traffic and improvement of Waterford.

The architectural features of the city, like its antiquities, are very small, indeed. The antiquarian remains are mean and uninteresting to the sight, though, historically, they possess much interest from their association with Norman and Danish colonization. The present ecclesiastical edifices, with the exception of the Protestant Cathedral and the Bishop's Palace, and the Roman Catholic Cathedral in Barron Strand-street, are not of a very high order. The County Court House is well constructed, and was the work of James Gandon, an English architect, who designed many noble buildings during the era of the Irish Parliament, to wit, the Dublin Custom House, the Corinthian Portico of the Bank of Ireland, Carlisle Bridge, and the Four Courts in part. The Town Hall is a somewhat commodious but plain stone building, which exhibits very little ornamental design, and the several educational establishments do not rise above, or, many of them, even reach mediocrity.

The Catholic persuasion has many staunch and strong adherents and supporters in Waterford; but there is great destitution amongst those lower classes of their brethren in the poor and over-crowded portions of the city. The national feeling is not so strong in Waterford as it is in Cork; and many of the sensible and even patriotic Catholics whom we conversed with expressed it as their opinion that party spirit crippled the trade of Waterford, and prevented an influx of visitors. The hotel-keepers, especially, are loud in their complaints, and wish in their hearts that all agitation had ceased. We must not conceal, on the other hand, that there are many of the citizens of Waterford who continually inveigh against the Government for not making grants for the carrying out of public works, and for not affording means for doing sundry other things that Waterford might try and do for itself, without soliciting aid from the Treasury. For instance, the question of the Fisheries possesses a great interest for Waterford, both the deep sea and the salmon fishery of the Suir; and it is an inexhaustible field of wealth—an industrial resource which a little vigorous exertion on the part of Waterford herself could make most remunerative.

In our conversations with a variety of folk about what they thought of the recent and present measures brought in by Government for the bettering of the condition of the country, and adjusting the claims of parties, various opinions seemed to be entertained. A large portion appeared to think that the settlement of the Church Question was the forerunner of much future good to the country; while a still larger party were dogmatic in asserting that in the equitable settlement of the Irish Land Question lay the only hope in staying national decadence. A third party, and pretty considerable in number too, though not possessed of so much worldly goods as the former, were loud and rampant, and quite vehement in protesting that no English legislation carried on in England could ever do any good for their country. It is needless to say that this portion of the people were belonging to the “National Party.” Their hopes, aspirations, aims, and day-dreams were centered in a National Legislature in Dublin.

The county of Waterford has lead and iron mines, and within what may be called the environs, the copper mines of Knockmahon are worked successfully by the Mining

Company of Ireland. In Cappoquin, or near it, marble quarries exist; but the city of Waterford, in her public institutions, or in her exports, affords us slight evidence of its possessions.

We noticed a great extent of grass lands in the environs of Waterford and through the county generally, and very little tillage. Much of the ground to the east is low and swampy, but a great portion of the surface of the county is mountainous, and ranges of rocky, but not wholly unprofitable, hills are scattered about.

It will be seen from what is written that English rule at present is not altogether to blame for Waterford's rather depressed state of trade, and it may give hope to many in the city to say, there are indications of a more prosperous future, arising out of the steam-packet communication with the West of England, which, if properly availed of and worked with energy, will lift Waterford gradually up to a more exalted commercial position than that she has of late years occupied.

The railway management between Cork and Waterford does not strike us to be at all what it should be. The condition of the carriages is very bad, and several of them are unfit for decent usage. The second-class carriages are far inferior to most of the English third-class ones, and even those of the first-class are barely respectable. The directors should look to this, and not by their neglect or parsimony scare away tourists in future from visiting the South of Ireland.

We must give credit to Waterford for some recent harbour improvements completed, and for its intentions respecting some future projects.

What concerns the public more at the present moment is the health of the city, and this is a duty which is not properly attended to. In our walk through Waterford we encountered many nests of disease, a great deal of dirt, an imperfect supply of water in many places, and not a few tumble-down tenements that ought to be at once removed.

The corporate authorities have a good deal of wants in their midst calling for immediate attention, and the local press could not perform better service than by pointing out these. Public testimonials to public men must give way to sanitary labour. Improved dwellings for the poor, hospital accommodation, good sewerage and drainage, a thorough cleansing of the streets, and a perfect water supply—these are among the pressing requirements of Waterford.

What we have written we trust will be accepted in a kindly spirit, for we are as anxious as any citizen by the Suir can be to see it enjoying health and prosperity, and proudly bearing its ancient motto, "*Urbs intacta manet*" *DUBLINIENSIS*.

THE GENERAL POST-OFFICE, DUBLIN.

IN the march of improvement, though much has been added to the general usefulness of our chief postal department in its internal arrangements and management, yet the exterior appearance of our Post-office as a public building has been seriously injured by uncouth and unskilful innovations. The blocking up of the front arcade a considerable time ago, and recently the entire closing up of all the chief central entrances, have added to the shameful disfigurement of the building as an architectural feature in our metropolis. The work of Francis Johnston deserved better at the hands of the city he honoured, and which ought to have honoured him in return for his bounty to Art, as well as his genius in illustrating it. No matter what may have been the pressing exigencies of the postal authorities, they could have carried out these arrangements without defacement. They had space enough; within, they had an entire unused courtyard, and they had other obvious ways to avail themselves of in increasing room; but no, they should commit a bit of destruction much akin to vandalism, to carry out their darling schemes of centralization and postal economy.

It is useless, perhaps, to remonstrate, since ministers of public works have ceased to know Art, and have failed to see any difference between a portico of granite and a wooden shanty.

The next move we expect to hear of in this ill-starred city is an order from the Postmaster-General, perhaps, for the removal of the columns and pediment in front of our General Post-office. At present their use is superseded by the sagacity of our postal authorities, and Johnston's portico stands now a dumb show, a refuge for pigeons above, and a refuge for sinners and the rain and storm-driven below.

Concerning the inside business of the Post-office, a writer in the *Freeman's Journal* furnishes some particulars that may interest our readers. Speaking of telegraphic arrangements in the building, he says:—

"The main work of the telegraph department is done in this chief instrument room, in which 40 females are employed at some portion of the day, and 135 males. No girl is allowed to work except between 8 a.m. and 8 p.m. Those who come in at the former hour leave at 4 p.m., and have half an hour for luncheon. Those who leave at 8 p.m., don't come in until noon. All the night work is done by the male clerks. The females have from 12s. to 18s. and 20s. per week; the males 14s. to £2—all paid fortnightly. The males are trained in College-green instruction room, the females in the Queen's Institute. Most girls go to the country stations at first. A boy will learn the work in a couple of months, a girl something sooner; but her quickness is purely digital, for her ignorance of public affairs, which a boy mends in some sort, militates against the progress she might otherwise make.

"The time kept in the great room is Greenwich, by which avoidance is made of all disputes as to any delay of English messages. We come now to that little army of martyrs who are to be found careering in gleefulst humour through every street in the city. When a message comes for Dublin it is "carried" through the tube to the delivery room; a signal is given, and a boy is on the spot. If you are a customer, or a newspaper, or a public building, of course you will have a little pigeon-hole to yourself in the room, crammed with envelopes with your address boldly printed thereon. The message is slipped in and the boy slips out, and for this delivery he gets three farthings if you live in the city; three halfpence a mile, and 'bus, car, or train hire, if you live outside the city. But this can occur very rarely, for every suburb has its office, and of course the message is forwarded by wire. These boys often make 12s. or 14s. a week; the quicker they are the more they win. There are 50 employed in the Post-office, 25 in College-green, 3 in the Four Courts, and 2 in the Custom House. There is a boy in every delivery office in the city and at railway stations. They are paid weekly. The offices at College-green, the Custom House, and Four Courts are open from 8 a.m. to 8 p.m.; the General Post Office never closes.

"There were 115 offices open at the time of the transfer on the 5th February, 1870. There are now 439 offices open, showing that 324 offices have been opened in rather less than 20 months. About 200 clerks (male and female) and 90 messengers were transferred to the Post-office on the 5th February. At the present time there are 180 female clerks, 350 male, and 185 messengers. The pay of the staff has been increased from 20 to 50 per cent, and the hours of duty at the large offices shortened. Under the old companies about 7,000 messages were forwarded weekly. At the present time an average of 16,800 messages are forwarded. In 1870, at the same time of year, an average of 11,000 messages were forwarded weekly, which shows an increase of 5,800 and of nearly 10,000 over the number forwarded prior to the transfer. But the most satisfactory part of the return is the large increase in the number of messages which are forwarded from Irish Postal Telegraph Offices for delivery in Ireland.

"Of the 16,800 messages weekly an average of 9,600 are Irish messages proper, the remaining 7,200 being telegrams forwarded across Channel to England, Scotland, and the Continent. It will be observed, then, that the Irish messages proper alone exceed by 2,600 a week the total number of messages forwarded at the time of the transfer, and it may be fairly assumed that there is at the present time an increase of 6,000 inland telegrams weekly over the number forwarded during the time of the late companies. One complaint is received for every 600 messages forwarded, and about 30 per cent. of the complaints are due to the indistinct writing of the public and to the insufficient and incorrect addresses furnished."

The writer goes on to describe the arrangements and order of business in the sorting office. We have only room for the following extract:—

"Boys were posted inside the great receiver in Sackville-street. They did nothing but turn all the letters face up, stamps the one way, and pack them up in oblique columns. Fourteen boys took these away, and by means of a single stamp obliterated her Majesty's face and impressed the circular date-mark. No little skill was shown in this work. The letters were then taken to the primary sorting table where eighteen men distributed them into great divisions. A score of them took each his bundle and re-distributed them into minor divisions; and finally 'the walks' were taken by the men appointed for the district. Every bole you can see has the name of a place or a district printed over it; but the sorters are so skilful that they never raise their eyes from the address but just launch the letter to its place. The despatch of business is startling. What was chaos at 6 o'clock is calm at 7; the letters on their way to house or rail; and the sorting office relapsing into gloom. It is very hard to believe, yet the fact remains, that 394,000 letters get into the Dead Letter Office in a year, the addresses not being found; and of this number 5,797 last year contained cash, notes, cheques, or bills, value for £51,562. Of course the greater portion of this was recovered by the owners. There are 606 persons employed in the General Post-office, half that number being in the sorting-room. About 115,000 letters and 45,000 newspapers and packets go through this room every day; and about 450,000 letters, &c., are delivered in Dublin and suburbs in a week. Doubtless, when the new rate comes into operation next month the business will be much increased, and the additional delivery at 3.30 p.m., which we are promised, will do much to facilitate commercial transactions."

BALL'S BANK OBSTRUCTION.

En passant. In the late removal of the railings at the General Post-office in Henry-street, and the widening of the footways, a decided improvement has been effected. It is still, however, incomplete while the hideous 10 feet high iron barrier in front of Ball's Bank is allowed to remain. The directors of this bank must be compelled to give way to public opinion. If they think they are entitled to compensation, let the affair be considered; but on the score of safety we do not see what plea the directors of the bank have to urge. No danger can be apprehended. The railings as they exist at present are truly what an Irishman would call an ugly *gazebo*, neither useful nor ornamental, but absolutely a public nuisance. We may as well state that it is rumoured that the City Architect has been instructed to prepare plans by which it is hoped the bank premises can be sufficiently secured, and other objections put forward by the directors satisfactorily overcome.

PROPOSED SANITARY EXHIBITION AT LEEDS.

THE Social Science Association are to hold an exhibition of sanitary appliances at their forthcoming annual congress at Leeds, opening on the 4th of October, and ending on the 11th. Among the articles to be received will be filters, water-fittings, taps, stand pipes and pumps, closet apparatus, models and plans of improved workmen's dwellings, public baths and washhouses, gymnasiums, cottage and temporary hospitals, illustrations of various disinfecting processes, hospital ambulances, illustrations of drainage, farm and sewage irrigation works, specimens of preserved meats and other dietetic articles, improved cooking apparatus, warming and ventilating apparatus, &c. The exhibition is intended to bring under the notice of health officers and the many men interested and experienced in sanitary questions in various parts of the kingdom, who usually attend the Congress, the latest appliances of science having for their object the improvement of the public health, and will probably form a useful as well as an attractive feature of the meeting. Every information may be obtained on application to Dr. Robinson, hon. sec. of the Health Department, Social Science Offices, Leeds, by intending exhibitors and all others interested in the labours of the Association.

STREET ARCHITECTURE IN DERRY.

Our illustration in this number shows front of new premises erected on Carlisle Road, Derry, for Mr. Hugh Kerr, photographer.

The materials used are Belfast red pressed bricks, with joints struck in black mortar; bands, &c., of blue and white bricks; copings, strings, cills, &c., of white sandstone from Dungiven, near Derry. The first storey and dressings to upper windows are finished in Portland cement.

Metal-work has been used in panels of parapet, finials, balconets, columns, &c.

The building has been erected from the design and under the immediate superintendence of Mr. William M'Elwee, by Mr. Robert Maxwell, builder, of Derry.

Messrs. George Smith and Co., Sun Foundry, Glasgow, supplied the metal work.

In an article on "City Improvements" the *Derry Sentinel* has the following:—

"It is again our pleasing duty to notice a few more of the improvements lately effected in our city as indications of the increasing prosperity and progressive spirit of its merchants and capitalists. The numerous splendid villas, commodious and comfortable dwelling-houses, extensive warehouses and shops recently erected in and around the city, afford unmistakable proof of the increasing wealth and thriving business of the community in general. In no class of buildings is the general prosperity more apparent than in that of suburban residences, numerous handsome and ornate specimens of which now deck the suburbs of the city, adding to the great natural beauty of the landscape on all sides. Crawford's-square, the immediate subject of our notice, was originally designed for a class of buildings calculated to supply a want which the growing taste evinced for suburban residences had created, and, as far as practicable, to combine the comforts and quiet of a villa residence with the advantage and convenience of city life. The several lots of building-ground forming the square, which is situate in one of the most improving portions of the city, were formerly the property of the late Samuel L. Crawford, Esq. It was Mr. Crawford's intention, we believe, to erect a number of first-class dwelling-houses on three sides of the square, the centre to be laid out in lawns and pleasure-grounds. The works were commenced, and a portion of them executed, but the rather sudden demise of the proprietor put a stop to the project. The lots were offered for sale in the Landed Estates Court about a year ago, and John M'Adoo, Esq., one of our most prosperous merchants, became the purchaser of them all, with the exception of the lot on which Hugh Stephenson, Esq., has since erected a large and handsome villa residence. Mr. M'Adoo, with the energy and wisdom which characterise his business acts, at once set about carrying out Mr. Crawford's original attention, and in this he has succeeded admirably. Although scarcely a year has elapsed since Mr. M'Adoo became the purchaser, he has already completed, on one side of the square, eight commodious dwelling-houses, which, in beauty of design and neatness of execution, are creditable to the proprietor and an ornament to the locality. The houses, which are three storeys in height, are built in the Italian style of architecture, and are stepped to suit the incline of the ground. A very handsome bay window is formed in front of each, which commands a splendid view of the harbour, the river, and Ross's Bay. The fronts are finished in Portland cement, and altogether the elevation presents a very pleasing *façade* to the square. No expense has been spared in finishing the houses internally, and fitting them with every convenience, such as baths, with hot and cold water supply. We are glad to learn that all these houses have already been engaged; and we believe that,

so great is the demand for dwellings of this description, a continuation of this row, in the direction of the new Academical Institution, is in contemplation by the enterprising proprietor. The above-mentioned houses have been built from the designs and under the superintendence of Robert Collins, Esq., C.E., by Messrs. G. & R. Ferguson, builders, of this city, who have carried out the work satisfactorily and with credit to themselves.

We have learned that, owing to the increasing population in the direction of Rosemount, Crawford's-square, and Edenballymore, and the corresponding increase of traffic, a project has been set on foot, and a company is being formed for the purpose of establishing a two-horse omnibus to ply regularly between the Waterside and those localities, conveying passengers at a merely nominal rate. This conveyance will pass through the principal streets, taking up and setting down passengers at different places by the way. We believe a committee has been formed, and that several leading merchants have taken shares in the enterprise."

THE CARPENTER.

A cunning hand has the carpenter,
And a keen and balanced eye;
But seldom prone in his work to err,
And, if erring, soon knows why.
He works to scale with compass and rule,
And, whether with saw or plane,
Keeps to his "lines" with a judgment cool,
And a steady hand and brain.
Success to our ancient artizan,
Who can act so well his part
In fellowship with his fellow man
Of the grand old building art.
Compass and gauge, and level and square,
As trying tests he commands,
But the work they help him to prepare
Rests more with the head than hands.
A noble craft has the carpenter,
And an olden lineage;
And some of his name and race who were,
Will live on history's page.
Allied to mason and architect,
May his fame increasing grow,
With hands to form and mind to direct,
And good workmanship to show.
Oh, Euclid! fount of the craftsman's lore.
On thy great masonic scroll
He reads the science of truth, and more—
Its beginning and its goal;
Circles in circles, and "neath and above
Circles intersecting still,
Evolving an art with a master love
For the prize of human skill.

ARCHIMEDES.

SANITARY MATTERS IN THE CITY AND PROVINCES.

An increased activity is observable in several directions in sanitary matters. Diseased meat and adulterated food and drink have been looked after, and the services of the Chief Officer of the Board of Health and the City Analyst have been called into requisition. Penalties have been inflicted in the city during the past few days for exposing unsound meat, and selling dirty water for milk. The bakers, we think, should also be looked after; the coal-dealers and the huxters, who have an immemorial proclivity for turning the balance in your favour with light weights and measures. The "squatters" and "squaws" of Coles-lane and Pill-lane, who never cry stinking fish, and the fruiterers of Green-street, some of whom deal in over-ripe fruit, require an occasional visit from the inspector of nuisances. The poorer classes of Dublin, who can only afford to purchase a miserable ounce or half-ounce of tea at a time, are poisoned by tea-dust or "sweepings," and bread is sold to them mixed with bean-meal and whitened with alum. Adulterations of food are not half looked after in this city, and these and the vendors of light weights and measures require special attention to be paid to them by the corporate authorities.

The scavenging of the city shows but little signs of improvement, and north and south there are still numerous streets, courts, and alleys which are seldom visited for the purpose of cleansing.

In Kingstown the Commissioners have been latterly pretty active in attending to the sewerage and drainage of the district. Many summonses have been issued to the holders

of tenement properties. Gas companies have been noticed relative to the escape of noxious gases, and communications have been opened with the collector of customs relative to the prevention of cholera from the arrival of infected ships.

In the provinces we notice activity in some places, and a great deal of supineness and carelessness in many more. Cases of stupid stolid ignorance are not rare; but we hope in time that sanitary knowledge, freely or compulsorily acquired, will improve matters.

In Portarlinton little seems to be done to abate nuisances, although a sanitary officer was lately elected. A great majority of both inspectors of nuisances and relieving officers are in ignorance of their precise duties, and this seems to be the case in Portarlinton.

In Naas the Commissioners are growing more attentive, and the magistrates are inflicting fines.

Newbridge is also stirring in the good cause, and the Commissioners are giving a warning that they will rigidly impose penalties for cases of negligence and non-compliance with orders.

Improvement is needed in the Curragh district, and if the onus rests with the military authorities and the Government, they should at once be called upon to abate the nuisance complained of, arising, we believe, from the sewerage of the camp.

Tipperary is in characteristic rebellion against the introduction of the Towns' Improvement Act. One gentleman actually moved that the consideration of having the Towns' Improvement Act introduced into Tipperary be adjourned for ten years. If Tipperary will not save herself, she must be compelled to cease from corrupting others. Whether the Towns' Improvement Act is introduced or not into Tipperary, the magistrates have power to enforce cleanliness. Both the landlords and the magistrates must combine to put an end to nuisances. We trust, however, Tipperary will recover her reason soon and feel ashamed of having opposed sanitary improvements, which, in other words, means an increase of individual life, and a well-established Public Health. Let the tyranny of landlords be what it will, and of this Tipperary is wont to complain, it is no excuse for dirty habits and filthy homes.

The local press in several of the country towns might do a good deal more in encouraging sanitary habits among the people. Unhealthy homes are always the hot-beds of disease. Cleanliness leads to comfort, and ensures respectability among one's neighbours.

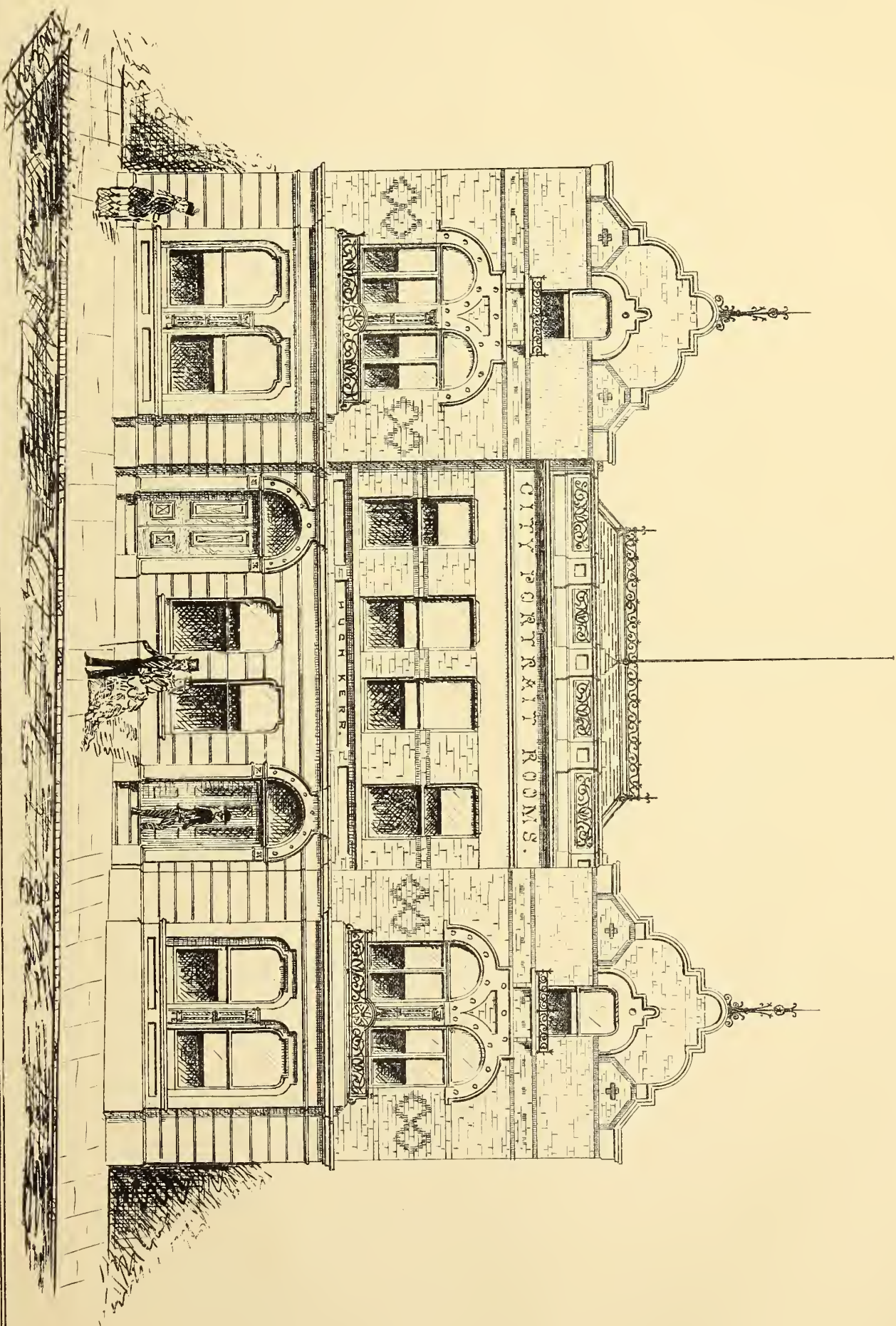
We perceive by the local press, that in Coleraine, Drogheda, and Ballymoney, the town authorities are commendably engaged in enforcing sanitary regulations. We wish them success in their laudable efforts, and we hope they will not suddenly relax them. Strict impartiality should guide their actions, and no favour should be shown to the influential no more than to others, who live in defiance of the laws of Public Health.

NATIVE LITERATURE, AND THE PUBLISHING TRADE.

Our article on the above subjects having created an interest and met with a hearty reception in several quarters has impressed us with the necessity of entering shortly at greater length on the discussion of the interests involved, which are of paramount importance to this country. In the meantime, we invite honest, clear-headed disputation from all quarters, and will be happy to afford the fullest liberty to those who have aught useful to communicate.

If really useful work in the national or public interest is to be accomplished, truth, and nothing but the truth, must be told.

We hate cant, trimming and time-serving—it is the curse of modern, political, literary, and theatrical journalism. It has debauched the public morals, corrupted the public spirit, and almost ostracised every spark of sterling honesty from our public



councils. Oh! is it not a pitiable sight to behold in this city, which had once a living literature to be proud of, the utter degradation of the craft of authorship, and the genius of true journalism?

We have a press in sooth, a newspaper literature flashing betimes with an intermittent feverish spirit, but, latterly, too prone to pander—vegetating in its own self-abasement, instead of vivifying the national aspirations and advocating those educational, industrial, and social questions which form the constituent elements of a country's power. Where mere money-grubbing propensities exist, mental and scholarly culture will be found abandoned, and the Grub-street bar-nacle of literature in the ascendant.

Poor Dublin! poor widowed capital of an ill-starred nation! thy own children, we fear, have bartered thy body for the purpose of dissection. Brain and blood, and literary seed and germ have passed away in the unholy surrender, and we are left to botanise upon the graves of the dead. Of native literature, in general and particular, its patrons and prospects, its friends and foes, we promise our readers a further insight hereafter.

NOTES ON BUILDING TIMBER TREES.

THE PINE AND LARCH.

THIS class of trees, in its different varieties, is one of the most useful of all our building timber trees for the purposes of house carpentry, joinery, and household furniture. The consumption of pine timber is somewhat enormous in the British Islands. Among the more general species of this timber in use, is the *P. sylvestris*; the Scotch fir; a timber known as Dantzic or Riga fir; and Russian deal; *P. strabus*, or the white deal or pine of America; *P. rigida*; *P. Lambertiana*; and several others. The Scotch fir or wild pine yields the common turpentine, and, by distillation, oil, spirit, and essence of turpentine. When subjected to a very destructive process of distillation the tree yields wood-tar and pitch. In Norway the inner bark of this tree is utilised for an alimentary substance known as bread-bark. A woolly or fleecy material is also manufactured from the leaves, and is used for stuffing mattresses. A commercial product has been introduced a few years ago from Germany called fir-oil, of which this tree is the source, and the product is strongly recommended as an external application for rheumatism, neuralgia, and kidney complaints. *P. pinaster*, or the cluster pine, yields Bordeaux turpentine, pitch, and galipot tar, and *P. palustris*, or long-leaved pine, furnishes a large amount of turpentine, tar, &c.

There is also the *P. veda*, or frankincense pine; *P. pinea*, the stone pine, which has edible seeds; used as a dessert, as pine nuts; *P. cembra*, the Siberian stone pine, which has also edible seeds (the young shoots of the latter on distillation yields what is called Carpathian balsam), *P. pumilio*, or mountain pine, spontaneously yields a resin called Hungarian balsam; *P. geradiana*, a native of Thibet and Afghanistan, have edible seeds; and another species which flourishes in the Himalayas, the *P. longifolia*, is the source of a very superior turpentine.

It will be seen from the above enumeration of species that their properties are most valuable and useful as articles of daily use, independent of the value of the timber those different trees furnish.

The tree known as the larch, which is a description of fir, may be mentioned in connection with the above, for it possesses many useful and most valuable properties. It is a great pity that landed proprietors in Ireland do not pay more attention to the growing of the larch, as it would repay them their trouble. It requires but little care, and will thrive in any sort of poor soil. In England a good deal of attention is paid to its cultivation. The timber of the large trade is a great favourite with civil engineers in the construction of bridges, railways, canals. It can well withstand the action of water, and it is quite

as durable as oak; it is free from knots, the grain is close, and when required as timber for ornamental purposes it will take an admirable polish. It does not crack, warp, and can bear a very large amount of heat without visibly shrinking. It is not much used for joinery purposes, although fitted, on account of its not been so easily worked as deal, pine, or chesnut. It is used for boat and ship building purposes, for side planking. On the Continent larch timber is extensively used for a variety of purposes, such as pipes for the conveyance of water, railway sleepers, shafts for mill wheels, and it is also utilised in vineyards for the support of the vines. From the larch is procured our Venice turpentine, and an excellent description of charcoal. In Switzerland the larch tree is squared into logs, for building houses; and in Prussia, France and Germany wine casks are made from the timber of the larch tree.

The larch tree is cultivated in many places in Scotland on poor land, and of late years considerable attention has been paid in the sister kingdom to the planting of it. There are thousands of acres of waste land in Ireland where the larch tree might be planted with profit to the owner and the district in general. Larch trees of three or four years old might be planted thick, say one foot asunder; they rush up with great rapidity, and when cut young they make admirable hoops. No other timber possesses as good a quality for the purpose. They are extensively used in England for hop poles, and, indeed, for various purposes, according to their strength, age, and growth. The Romans were fully sensible of the value of the timber of the larch tree; and so much was it prized by them that they called it *immortale lignum*. It has been the practice in Ireland for many years to go in for the *total extirpation* of woods and forests, hedges and landmarks. One would suppose that such was the infatuation of some of the cultivators of the soil, that they seemed bent on making this country a "howling wilderness." Every encouragement should be given to the judicious plantation and cultivation of useful timber in these countries, and Ireland, more so than either England or Scotland, requires that a harmonious proportion should exist in this island between the quantity of wood and water, in the absence of those mineral and manufacturing industries, which, though they enrich the sister islands, are remarkably diminishing the beauty of each.

POT AND KETTLE.

Two rival papers we have got,
With olden debts to settle;
One calls the other, old "Black Pot"—
The other, "Dirty Kettle."
One is stung with deep remorse—
The other feels the nettle.
Blest advocates of Moral Force
And "Home Rule," Pot and Kettle!
Hammer and tongs they go each day
To show each other's mettle.
Fae an Belac! Clear the way!
Long life to Pot and Kettle.

CIVIL.

NEW PRESBYTERIAN CHURCH, STRABANE.

ON Friday last the ceremony of laying the foundation-stone of a new Presbyterian church at Strabane was performed by Miss Houston, of Lifford. The old building was erected upwards of two centuries ago, and was found too small for the present congregation. The cost of the new church and its site is estimated at £4,000, of which sum £3,000 has already been raised. A plan furnished by Mr. John G. Ferguson, architect, Derry, was selected from amongst thirty others, and building operations have been commenced by the contractors, Messrs. McClelland and Co. The church is designed to accommodate about 750 persons. The site has been utilised to its fullest extent by the architect. A basement-storey has been formed below the street level, with a clear excavation all around, opening out on the river. It will be lofty, spacious, and well-lighted, and contain a lecture-room, minister's-room, session-

room, heating-chamber, and apartments for caretaker. The church is a parallelogram of 80 ft. by 46 ft. 6 in. in the clear. The style is the Early English Gothic, conventional in detail, but freely treated in outline. The interior will be dissimilar in some respects from most Gothic churches. Architectural effect is kept subservient to comfort and convenience. A spacious vestibule, with lateral porches, containing stair-ways—27 ft. 6 in. by 10 ft.—will be entered from a central and two side doorways. The body of the church, lighted by lancets, and a wheel window over pulpit, filled with cathedral glass, is divided by two passages into three blocks of comfortably-arranged open seats, those at the sides converging towards the pulpit, which is approached from a spacious platform, in front of which will be the choir seats. There will be sittings for 500 persons on the floor—side galleries are dispensed with; but an end gallery, thrown over the vestibule, lighted from the front, and approached by two staircases, will accommodate 250 persons, while leaving fully two-thirds of the area of the house clear—thus giving 750 sittings in all. The roof will be in a single span, with the ceiling coved to a height of 7 ft., and plastered. The principals, open to the hammer-beams, will be supported on corbels, and filled in between the quarterings of the exposed timbers with elaborate tracery. The bench ends, seats, pulpit, gallery front and fittings, will be of mediæval pattern, and, with the exposed portion of roof, and beams, and sheeting of gallery, and vestibule ceilings, stained and varnished. The vestibule will be laid with encaustic tiles, and it is intended to heat the church with hot water. The lighting will be principally by coronæ, and every care has been taken to ensure perfect ventilation. Externally, the design is striking and effective. The centre of the *façade* is pierced with a bold and handsome four-light traceried window, with shafted mullions and wheel-head, having numerous cusped openings, and a deeply-recessed and moulded doorway. A projection, with the aid of buttresses, serves effectually to break the line of front, which is thus recessed at either side. Over each of the side doors will be two-light traceried windows, serving to light stairways. A well-proportioned tower and spire will rise from the south-east angle to a height of 104 ft. above the street pavement. In the belfry stage, which will be encircled at the angles of the octagon with shafts and foliated capitals, supporting the corbelled base of spire, it is intended to place a bell. Further effect will be gained externally by the introduction of pinnacles on the angles of flank, painted and gilt finials, hood mouldings, and voussiors of Donegal granite over door and window apes, &c. The rubble walling will be of local material, with dressings, windows, door-jambs, spire, &c., of Dungiven stone. The space in front of the church will be enclosed with boundary-railings, gate, &c.

THE PRIVILEGES AND AUTHORITIES OF IRISH CORPORATIONS.

THE following very proper motion was brought forward and agreed to in our City Council, at a late meeting, by Mr. C. Dennehy. For many years the subject has been cropping up now and again. We hope the inquiry will be prosecuted to a satisfactory conclusion, and that the citizens, as well as the Corporation, will soon understand what are exactly the rights and privileges of our ancient corporation:—

"That it be referred to a committee of the whole house to inquire and report as to what are the executive powers, privileges, and authorities possessed and exercised by the different municipal corporations in England and Scotland, and withheld from or denied to the municipal representatives of the people of Ireland; and further to report if it be a fact that, whilst the corporations of Great Britain have the entire appointment and control of the police, the nomination to the borough magistracy, and, in most cases, the appointment of the sheriffs as well as the control of the local courts for the administration of justice, such powers, privileges, and authorities have never been confided to the municipal representatives of the city of Dublin."

THE SANITARY CONDITION OF DUBLIN.

ALTHOUGH Dr. Mapother has ably refuted some of the statements of Mr. Benson Baker, that gentleman reiterates several of his former charges with greater vehemence. As we are anxious to elicit the truth, the whole truth, and nothing but the truth, we will extend to Mr. Benson Baker's statements the benefit of increased circulation. Eliminating his statistics, we print the gist of his letter in the same order as it was given in a morning contemporary. Concerning—

TENEMENT HOUSES.

These houses were clean so far as the passages, staircases, and rooms were concerned. I confess I was agreeably impressed with the personal cleanliness of the poor and their rooms. Their condition compared favourably with people in like circumstances in London. Personal neglect I found at a minimum, corporate neglect at a maximum. I mentioned that the water supply was exceptionally good and plentiful, and that more ran off by the bye-wash than was consumed by the citizens. But you have a double service of conduit pipes from Stillorgan to the city. One of these services might with the greatest advantage be used to water the streets, flush the sewers, and mitigate the proverbial Liffey nuisance at low water. There is in the Vartny Water Works the most important factor in maintaining the salubrity of the city, but it is not utilised.

THE DISPENSARY IN HIGH-STREET.

This institution presents to the hygienist the following interesting features:—It is approached through a narrow, dirty passage. The exterior is grimy, the windows are festooned with ancient dirt; where the glass is absent, boards and rags supply the place, and contribute not a little to the grotesque. On entering the waiting room one is struck by its damp, barn-like appearance. The atmosphere in the morning is like that which any one who has visited ancient crypts would at once recognise. The consulting-room partakes much of the same character. The walls here have been boarded round to the height of some four feet, in order to prevent the plaster falling off. Above this board the water mark, like a tidal wave, is plainly seen. The cellar is unoccupied, and, too usual, refuse has accumulated, and a musty fusty smell arises through the floor, and fills the room. The room above the dispensary is occupied by an amateur guano manufacturer, under the title of a poultry yard. To the rear of the dispensary is an ashpit, &c., filled with every abomination. The water from the roof of the dispensary percolates through the heap of filth, and slowly finds its way through the cellars into the house of the resident medical officer. The house is, of course, exceedingly damp. "Abandon hope all ye who enter here," would be an appropriate motto. Rheumatism and bronchitis are the frequent ailments of the residents. It is difficult to get a servant to remain, the one now there has a sepulchral cough, and the last porter died of fever of a typhoid character about three months ago. On lighting a fire in the parlour a dense fog arises. Some idea of the dampness of the place may be inferred from the fact that the glass shade suspended over the fanlight in the passage condenses the moisture, and it may be seen constantly drip, drip, drip, like the dripping well at Knaresborough, which may certainly be ornamental in a wood, but highly objectionable in a dwelling-house. Now, sir, the condition of this dispensary has been reported twelve months ago by the medical officers, one of whom is an alderman of the city, but as yet nothing has been done. I was so disgusted and horrified that I made it a point personally to inform the sanitary authorities, and they one and all began to make excuse, and this abomination still remains.

THE DISINFECTING APPARATUS.

I visited the disinfecting apparatus; it is situated in Marrowbone-lane, built in the corner of a dung-heap—one of the depôts for the accumulated refuse of Dublin. There is a hole in the pipe through which the smoke and soot escape into the disinfecting chamber. This condition has existed for several weeks. The chamber is about 13 ft. square by 7 ft. high; it is open daily from ten till four. The process of disinfection occupies five hours. There is no vehicle to bring the foul clothes to the apparatus. The articles to be disinfected are, therefore, brought in cabs and cars. Are these public vehicles disinfected, or are they allowed to spread the disease? or does the same cart that brings the foul clothing take back the disinfected clothing, and thus re-infect it? Is not disinfection carried out in this manner a false security? According to the report, ten people had 500 articles disinfected in a month. Now, the number of persons suffering from communicable

disease during that month would be over 1,000, therefore 99 per cent. did not have their things disinfected. It is the duty of the Corporation to find adequate means for the disinfection of bedding and clothing, and to supply one or more covered carts for the conveyance of foul articles through the streets to the disinfecting apparatus. It is a monstrous thing to permit either persons or clothes infected with communicable disease to be carried in public vehicles.

Some of the above statements we know to be true; of others we cannot speak with any certainty at the present moment. We think, however, no time should be lost in enquiring into the charges made, that they may either be substantiated or disposed of. We are as ready ourselves to give a fair hearing to a stranger coming amongst us, as we would be to one of our own. It may not be pleasant, to be sure, to have our defects pointed out by the denizen of another land; but then our own city Press is culpable, to a great extent, for the bad sanitary state of Dublin. We have known in many instances letters to be suppressed by these newspapers, because, forsooth, their publication might offend Alderman This and Town Councillor That, or spoil the chance of an advertisement. It was not until the London professional journals took its sanitary condition up in earnest that portions of the Dublin Press condescended to notice the subject, and insert correspondence thereon. Indeed, at the present moment there are one or two journals in the city, which for the present shall be nameless, who 'burk' all mention of the subject. If plague or cholera visited our city in earnest, it would be a just retribution if such unworthy exponents of public opinion were to be the first victims. Our poor are murdered, poisoned, stifled, suffocated, in filth-crammed courts and lanes and misery-crowded tenements, and because it would reflect upon the incapacity of our corporate authorities, and offend Mr. Moneybags, our upright journalist says—"Better to leave well enough alone."

The question of the sanitary condition of Dublin will not be burked any longer, if we can help it. It is too serious a matter that any class of public men should be permitted to play fast and loose with the lives of the people.

SOCIAL SCIENCE CONGRESS.

THE special questions for discussion at the Leeds Congress of the Social Science Association, to be held from the 4th to the 11th of October, under the presidency of the Right Hon. Sir John Pakington, Bart., M.P., have been finally arranged by the general and local committees of the several departments, as under:—

JURISPRUDENCE.—W. Vernon Harcourt, Esq., Q.C., M.P., president.—1. What steps ought to be taken to establish a better system of legal education? 2. What is the best constitution of local courts, and what should be their jurisdiction? 3. What alterations are expedient in the laws relating to the devolution and transfer of land?

REPRESSION OF CRIME.—Lord Teignmouth, chairman.—1. How far ought the cellular system of imprisonment to be adopted: and how far does it necessarily interfere with productive labour? 2. By what principle ought the amount of punishment, other than capital, to be regulated? 3. By what measures may the trading in stolen property, whether by purchasing it or receiving it in pledge, be most effectually prevented?

EDUCATION.—Edward Baines, Esq., M.P., president.—1. What are the special requirements for the improvement of the education of girls? 2. How may the education of neglected children be best provided for? The question to be considered under the divisions:—(a.) Industrial schools and their relation to the school boards. (b.) In what form, if any, may compulsion be best applied? 3. What are the advantages and disadvantages of large as compared with small schools?

HEALTH.—George Godwin, Esq., F.R.S., president.—1. What are the best and most economical methods of removing and utilising the sewage of large towns? 2. What are the best means of securing the sanitary improvement of human habitations? 3. What are the best means of promoting the health of operatives in factories and workshops?

ECONOMY AND TRADE.—William Newmarch, F.R.S., president.—1. What amendments are needed in the existing laws for the licensing of houses for the sale of intoxicating liquors? 2. What principles ought to regulate the assessment and administration of local taxation? 3. Is it desirable that the state or municipality should assist in providing improved dwellings for the lower classes; and, if so, to what extent, and in what way?

Each of these questions will form one day's labour to discuss, and two days will be set apart for the reading and discussion of voluntary papers on some other subjects not specified above within the range of the departments.

THE BOOKSELLER ON IRISH LITERATURE.

OUR most useful contemporary the *Bookseller* makes the following kindly remarks anent our first article on "Native Literature and the Publishing Trade":—

"The *Irish Builder* has an excellent article upon the decay of the book trade in Ireland; a lament for the past. It should awaken the attention of the rising James Duffys—and there must be many of them in the country—and induce them to cultivate a branch of native industry that cannot fail to pay those who embark in it. For instance, why do the book-sellers of Ireland import foreign missals and breviaries, instead of printing for themselves? and are there no native artists who can supply their countrymen with good and cheap wall-pictures, in place of the wretched German daubs now found there? The article in the *Irish Builder* should be read with attention by all good Irishmen, Protestant or Catholic, Repealer or Loyalist, Feman or its opposite, whatever that may be."

In respect to the importations of foreign missals and breviaries, and of "wretched German daubs," in too many instances mere caricatures of our country and countrymen, the *Bookseller's* interrogatory is a most proper and pertinent one. Cheap wall-pictures are badly needed in the humble homes of Ireland, and it may not be known to our contemporary that to certain low purloins of the St. Giles and New Cut character in London and other equally low quarters in this city, this country is indebted for the supply of a large amount of the pictorial outrages on literature and art that disfigure the walls of many Irish homes at the present day.

The tastes of our lower classes need to be elevated, and, indeed, of some of our upper ones also. If a proper public spirit existed in this city, and if Irish journalism in general did its duty, "wretched German daubs," and equally wretched native daubs would be soon relegated to the limbo of intolerable nuisances.

We are thankful to our contemporary for its well-timed remarks, as also its friendly recognition of our labours.

INTERESTING HISTORICAL MANUSCRIPTS.

THE second report of the Historical Manuscript Commission, lately issued, furnishes the public with very interesting particulars of rare records and MSS. Although the great majority of the materials are English, yet amongst the list occur the names of personages who had a connexion with Ireland in their day, of one or two of whom we may hereafter furnish some particulars. It is a great pity that the Commission has not thrown some more light on Irish historical materials which are known to exist in many private and public collections in England. The little evidence which has as yet been published by this and other commissions respecting Irish materials, gives us but small proof that the same interest was manifested in unearthing Irish MSS. as was shown in the inquiry concerning those relating to England. Until a peculiarly Irish Historical Commission is appointed, having such men as the late John O'Donovan and Eugene O'Curry, or others of a kindred stamp, who really know the language, the history and surroundings of Irish records, we cannot expect anything like satisfactory reports concerning them. We

can never have a proper history of this country until all the MSS. relating to it are carefully ascertained and diligently combed over and reviewed. The second report alluded to says that—

“By the continued favour of the heads of houses of Oxford and Cambridge, Mr. H. T. Riley has been enabled to resume his examinations of what may be called the “Domestic Records” of the colleges in the two Universities. Among the records preserved at Clare College (formerly Clare Hall), Cambridge, its ancient minute book, or register, claims especial notice. Information as to the early history of the College is to be derived from it that has probably been lost sight of for centuries, throwing light more especially upon the munificent provision made for its Chapel by the foundress, and the history of some of its early masters and benefactors. The collection of letters, carefully preserved by the College, is interesting, those of Tillotson, while still a Fellow of this College and at a later date, occurring in considerable numbers. Among the other writers are to be found the names of Margaret, Duchess of Newcastle; Sanderson, Bishop of Lincoln; Pearson, Bishop of Chester; Hinchman, Bishop of London; and Moore, Bishop of Norwich. There is a letter of Robert Lover to Mr. Blythe, afterwards Master, descriptive of the ravages of the plague in Cambridge in 1665. The College Order Book contains many entries indicative of the state of political feeling in Cambridge at the beginning of the last century. At Gonville and Caius College is preserved the MS. History of the College written by Dr. Caius, its third Founder. The oldest Computus or Bursars' Account-book of this College, now in existence, begins in 1423, and contains matters of antiquarian and topographical interest. Amongst the most valuable records in the possession of Jesus College, Cambridge, are the Computi of the Nunnery of St. Radegund, on the site of which the College now stands. Some of the early deeds here throw light upon Cambridge localities, as early as the twelfth century. Though the College itself is of early foundation, the records belonging to Trinity Hall cannot be said to be of ancient date. Among its papers are letters from Queen Elizabeth, Lord Bacon, and Bancroft, Archbishop of Canterbury; and a letter (or copy of a letter) from the Fellows of the College to Henry Earl of Holland, Chancellor of the University, begging that John Selden (who was educated at Oxford) may be appointed Master. Among the comparatively few records or memoranda in the possession of Corpus Christi College, Oxford, a few notices will be found of Bryan Twyne, Richard Hooker, and Edward Pocock, the divine and orientalist. The book of charges for building the College in the eighth year of Henry VIII. has yielded some extracts which, it is believed, will be found of interest. The Computi or Account-rolls of Exeter College are probably among those of earliest date in the University of Oxford. Much information is to be derived from them as to the history of the College. The name of John Trevisa, a Fellow of the College, and one of the earliest translators of Higden's Polychronicon, appears more than once. The more ancient deeds and charters also of the College throw light upon the early history of the halls and various localities of Oxford. Manuscript entries in the Latin Psalter and Hymnal in reference to the obits of Richard Pates, Bishop of Worcester, and Nicholas Harpsfield, have been deemed worthy of especial remark. The earlier books of Lincoln College contain particulars relating to the history of the Church of All Saints, in Oxford. Notices have also been extracted from one of the College Registers as to Robert Sanderson, afterwards Bishop of Lincoln, and Nathaniel Lord Crewe, Rector of the College and Bishop of Durham. The details as to College life and discipline in the first half of the seventeenth century that are there given, from the rarity of such details, seem to be of peculiar interest. One of the most valuable documents in the possession of New College is a letter written by William de Wykeham, founder of the College, and the only specimen of his writing apparently (beyond his signature) that has survived to these times. Extracts also are given from the early Books of the Kitchen Steward and the Hall Steward which furnish much, and it is believed hitherto unnoticed, information as to the social usages of this country at the close of the fourteenth century. The rise in the College from the position of lowest scholar, of Thomas Bekynstone, afterwards Dean of the Arches and Bishop of Bath and Wells, has been traced from these books. The chief records belonging to Oriel College are its Computi or Treasurers' Accounts. In them a notice will be found of Henry Chichele, Archbishop of Canterbury, then a Fellow of New College, and some particulars relative to St. Mary's, now the University Church. Though not of any great extent, these extracts, it is believed, will be found to contain some matters of interest in reference to the management

of the College in those days, and the habits and usages of the times. From the Computi of Queen's College, Oxford, which began in 1347, only seven years after the foundation of the College, many particulars of like features to those presented by the Computi of Exeter and Oriel Colleges may be gathered. Notices have been extracted from them containing particulars relative to Robert de Eglesfeld, the founder, and to John Trevisa, the translator of Higden's Polychronicon. A John Wyclif is also mentioned in these Computi more than once. It was the opinion of the late Professor Shirley that this personage is identical with our early Reformer; reasons, however, are given for accepting his conclusion not without hesitation, the only alternative clearly being that there must have been two John Wyclifs residing much about the same time in this College. The question is also noticed, whether Henry the Fifth, when Prince, really was, as asserted by tradition, a member of this College; while passages hitherto, it is believed, unnoticed, are given in proof that his uncle, Henry Beaufort, afterwards Cardinal, was a member of the Society. The Register, or Chartulary of the Hospital of St. Julian, or God's House, in Southampton, in the possession of this College, commencing probably in the reign of Edward the Third, contains matters of interest that are at present unexplored, more especially in reference to the former history of Southampton. Under the head of Trinity College, Oxford, some slight notices are given of Doctors Kettell and Bathurst (former Presidents of the College), of Elizabeth, the second wife of Sir Thomas Pope, the re-founder of the house of Sir Theodore Mayerne, William Chillingworth, John Somers, afterwards Lord Chancellor of England, and the unfortunate Eustace Budgell who was originally a member of this College, though in some of the biographies he is mentioned as of Christ Church only. Worcester, being a college of comparatively recent foundation, has nothing of its own in the way of what may be called “records.” It, however, possesses a manuscript register of the town of Leslie in Fife, A.D. 1606-45. There are some entries in the register book of its predecessor on the site, Gloucester Hall, in which the names of Kenelm Digby and John Speed appear among the subscribers to the buildings of the new chapel in 1630. The folio MS. volume, giving an account of Archbishop Laud's trial, on close examination may possibly be found to disclose facts which have hitherto been overlooked. The records of Jesus College, Oxford, are but few in number, and not such as call for especial remark.”

The “unfortunate Eustace Budgell” alluded to above came over with Addison to Dublin, when the former was appointed Secretary to Lord Wharton, Lord Lieutenant of Ireland, in 1710. Budgell was appointed as clerk by Addison in the latter's office. Afterwards, on the arrival of George the First from Hanover, Budgell was installed as Under-Secretary to the Lord Justices of Ireland. Soon after he was chosen a member of the Irish Parliament. His career and vicissitudes here and in England would take a volume to relate. In his character as author or a public servant we may, on a future occasion, have something to chronicle in connection with other matters.

“SENSATIONAL STATISTICAL SANITATION.”

“THE British Medical Association (says the *Medical Press*), mourning over the sanitary destitution of the poor Irish savages, detached, at its Plymouth meeting, one of its members—Mr. Benson Baker—that he might illumine the benighted world across the Channel with the benignant rays of the all-benevolent Association. Mr. Benson Baker's function would, of course, be a nullity unless he established an epidemic of sanitary horror by which to work himself into a little notoriety, so a couple of days after his arrival, before he had time to rub his eyes after the journey, he writes to the Dublin papers a violent attack on the Sanitation of Dublin, and on the Public Health Committee of the Corporation. Dublin is muddy as to its thoroughfares, and no cleaner in its purlieus than other large cities; but, as far as any one can judge, by sight or smell, its streets are neither better nor worse than similar streets elsewhere. We are, however, relieved of the necessity of dealing further with Mr. Benson Baker's statements, for they have been completely and curtly disposed of by Dr. Mapother, the Dublin health

medical officer of the city. He shows that Mr. Benson Baker has credited the city of Dublin with the fever of all Ireland, and made other errors in figures of such gravity as totally to discredit him if his exaggeration failed to do so. The *British Medical Journal*, while it repeats in its last issue these untrue and libellous statements, administers a cutting rebuke to its *harum scarum* delegate. It says: “Mr. Baker's statistical observations are not without flaw, but his strictures are well intended, and they are likely to be found based upon facts, and worth serious consideration.” The fact briefly stated is that the street scavenging of Dublin is abominable, but the Public Health Committee has done and is doing its very best for the sanitation of the city, and the Corporation and the rate-payers are being educated up to sanitary reform as quickly as can be expected.”

[Though Mr. Benson Baker has been guilty of exaggeration in some particulars, he has nevertheless told some unpalatable truths which cannot be gainsaid. Say what we will in behalf of Dublin, none of us can attempt to deny with any show of honesty that her sanitary condition, in various ways, is deplorably bad.]

NEW BENEDICTINE ABBEY CHURCH, WORCESTER.

On Wednesday, the 6th instant, this new church was consecrated by Dr. Ullathorne, bishop of Birmingham, assisted by Bishop Brown. It will be known as the Abbey Stanbrook, near Worcester. It is erected from the designs of E. W. Pugin, architect, and will cost about £10,000. The church is but a first instalment of the new abbey buildings, which, when finished, are to accommodate one hundred religious persons, with apartments for the same number of young ladies, who will receive their education in this new establishment under the direction of the nuns. The interior of the new church contains every feature of a monastic church of the Middle Ages. The stalls and choir screens are of New Zealand satinwood, and are a masterpiece of artistic carving and workmanship. The organ case, by Messrs. Farmer and Brindley, is an extremely fine piece of wood carving, the spandrels being filled with angels in the style of the Nuremberg work of the 15th century. The altars, by Messrs. Morley and Boulton, are fine pieces of stone carving, some of the figures being of a high order of merit. The pavement, by Messrs. Minton, Taylor, and Co., is composed of the richest marbles interspersed with encaustic tiles, with emblems appertaining to the Benedictine order. The chancel rood and screen, by Mr. Hardman Powell, is wrought in iron, with the true feeling of a Quintin Matsys. The whole of the interior of the church is of Caen stone, the exterior of Bath and brick. The western tower is of great size and beauty, and contains one of the finest chimneys in the kingdom.

HOSPITAL ACCOMMODATION IN VILLAGES.

THE following judicious remarks appear in a recent Privy Council Minute on hospitals for infectious diseases:—

“Hospital accommodation for infectious diseases in towns is wanted more constantly, as well as in larger amount, than in villages; and in towns there is greater probability that room will be wanted at the same time for two or more infectious diseases, which ought not to be treated in the same ward. The permanent provision to be made in a town, in order to obtain reasonable security against the spread of infectious diseases, should consist of not less than four rooms, in separate pairs, each pair to receive the sufferers from one infectious disease, the men and women of course separately. The number of permanent beds to be supplied must depend upon various circumstances, chiefly upon the size of the town; but, as no reasonable amount of permanent accommodation could be trusted always to supply the requirements of a place when infectious disease has actually become epidemic, foresight must in the

first instance be used, how, in emergency, additional accommodation can be temporarily given to meet requirements in excess of the permanent provision: otherwise, the authorities may unexpectedly find themselves obliged to leave ill-lodged infectious cases at their homes, much as if no hospital had been provided. Accordingly, for a town of any importance, the hospital provision ought to consist of a permanent building, having around it space enough for the erection of temporary structures as occasion may require. Considerations of ultimate economy make it wise to have the permanent building equal to somewhat more than the average necessities of the place, so that recourse to temporary extensions may less often be wanted. In small towns, for instance, if an hospital consisting of four wards and the necessary administrative offices, is to be provided, the original expense of making each ward serve for (say) eight persons, will be far less than double that of making the wards for four. And in any case, it is well to make the administrative offices somewhat in excess of the want of the permanent wards; because thus, at little additional first cost, they will be ready to serve, when occasion comes, for the wants of the temporary extensions, and so save great inconvenience and outlay. In huts, as in permanent buildings for the treatment of infectious diseases, not less than 2,000 feet cubic space, with 144 square feet of floor, should be given to each patient. The ventilation of huts, also, is of equal importance with that of permanent hospital buildings. It is best secured by the combination of side windows with roof opening, the latter protected from rain, and running the whole length of the ridge of the roof."

CORRESPONDENCE.

"OUR SANITARY REFORMERS."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Your article in last issue on the above subject was both admirable in spirit and also well timed. You truly point out an untrodden path, yet an open but unutilised one, for public boards and other bodies who desire to bestow honor in quarters where it is well deserved. Although you mention none by name entitled to this new honorable recognition which you suggest, yet I think you gracefully and delicately indicate where one man may be found whose labors in the fields of sanitary science stand pre-eminent among other workers. Those who are acquainted with the history of modern sanitary improvement can be no stranger to him to whom they stand most indebted, and I will not hesitate to say that the selection could not have been made with better judgment. In a word, the honored name you indicate can be none other than George Godwin, Esq., well known throughout Great Britain for upwards of a quarter of a century for his untiring labors as a sanitary reformer, and as a distinguished architectural author and journalist. He has already won a distinguished name amongst his professional brethren, and his name is a "household word," not only in the huge labyrinth of mighty London, but throughout every portion of her Majesty's kingdoms. If we are to honor our sanitary reformers, and give honor where honor is justly due, let that honor be commensurate with the public services rendered by the person entitled to it. If the labors of George Godwin were honestly weighed, no distinction could be too high as a public recognition of his life-long and life-giving services in the interest of common humanity. Indeed, I think on the Government of these countries rests the onus of taking the initiative. It would do itself an honor in the act of bestowing it on such a man; nor can I for a moment doubt that there would be any of the English corporations who would not unanimously agree in endorsing a proposal for some fitting public recognition for the services of our greatest modern sanitary reformer. Wishing every success to your admirably-conducted journal, and hoping your suggestion may at no distant day be carried out, I am, &c.,

Dublin Library, H. C.
Sept. 9th, 1871.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Under the above title a most comprehensive and well-timed article appeared in

the last issue of your journal. Doubtless the subject will receive grave attention on the part of our rulers, at a time when the dreaded evil of pestilence threatens to awaken the public mind to a sense of insecurity, consequent on the neglect of the proper provisions for the protection of the lives of the poor and helpless.

It is a lamentable fact that, while the highest honours of the State are freely distributed amongst the loudest and most troublesome venal politicians, or the sleekest and most insinuating court flatterers, the labours of the zealous philanthropist, or patient and skilful pioneer of art and science, but seldom receives that honourable recognition which should be the reward of a well-spent life, devoted to every cause calculated to elevate and ennoble the great working community; and hence it is that so few are found, when wanting, to lead the van in the onward crusade against filth, squalor, pestilence, intemperance, and immorality. Adopting the concluding words of your article:—

"If one more distinguished than others in the field of sanitary science as worker, journalist, and architect, should strike you as one eminently deserving of honour, hesitate not to honour and reward him, for he will be found entitled to it on the part of the Crown and the people, and also to the distinction that accompanies such a reward for a life well, nobly, and usefully spent."

It may occur to your readers that an eminent journalist, removed alike from the margin of the Clyde and the miseries of the Liffey, has been for more than a quarter of a century the able and fearless champion of every movement that has had for its object the advancement of struggling Art—the removal of social grievances—the improvement of the homes and morals of the humbler classes—the establishment of Architecture in the public mind as an Art, combining our enjoyments with our necessities; while the cry of misery and neglect has ever found assistance and sympathy in high quarters by means of his ready type.

If the impartial Art-critic and unflinching censor has for so many years wielded his plumed sceptre in the cause of all that is "sublime and beautiful," has not society largely benefited by such untiring labours? If the accomplished architect, archæologist, author, and literary writer can claim a niche in the Temple of Fame, the name of George Godwin, F.R.S., editor of the *Builder*, should not go down to posterity unnoticed by the Government, under which he has served so long and so well, as a great moral Reformer.

At a very early period in life, Mr. Godwin received a gracious tribute to his literary talents from the *Société des Beaux Arts* at Paris, the gold medal having been presented to him on the publication of his "Churches of London." His essay on concrete obtained the medal from the Institute of British Architects, at a time when this material, now of such vast importance, was almost a stranger to our vocabulary.

The effects of his writings have contributed largely to influence the advancement of the scenery of the drama, where hitherto architecture was grossly misrepresented; reminding the supine stage manager of the words of Burns:—

"If there's a hole in a' your coats,
I rede you tent it;
A child's amang you taking notes,
And, faith, he'll prent it."

How many a benevolent millionaire turned his attention to improving the dwellings of the poor, from reading the pages of the *Builder*? How many a young aspirant in fame dates the commencement of his success to a kindly notice of his early efforts when he had no shop-window to exhibit his skill in? What vast sums of money have been expended on works of art through the "Art Union," of which Mr. Godwin was among the first promoters and, hon. sec. for many years? How many journals have followed his example to the benefit of the working classes, in various parts of the kingdom?

If honor is to be given to whom honor is due, then, indeed, the editor of the *Builder*

may expect his labours to receive public recognition.

Although the high social position to which Mr. Godwin's talents have raised him may render him personally indifferent to any public mark of distinction, it would only be a grateful compliment to the profession, of which he is a much-valued member, that some testimony of the approbation of the State should fall on one of her Majesty's well-tried and most active servants, before the descent of the curtain in the great drama of life.

Dublin.

C. G.

[It is needless to say that we entirely concur in the sentiments of our correspondents. We are always glad to see "honor given where honor is due," irrespective of creed or country. In this case it is well deserved, and we trust that the IRISH BUILDER will never fail in its duty in advocating claims which are right and just, and entitled to public support at home and abroad, or whether it be on the banks of the Thames or by the waters of the Liffey.—ED. I. B.]

THE CENTENARY OF O'CONNELL.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As one of the oldest disciples and followers of O'Connell, and one whose public actions never belied my words, I beg to thank you sincerely for your noble idea. It is quite probable that I may not live to see the completion of the O'Connell testimonial, as I have long since passed the span allotted to man. Yet as a proof of my earnestness I am ready to subscribe the sum of five pounds either as a subscription or as an instalment of a larger one, towards creating a fund towards the payment of preliminary expenses should your idea be carried out of celebrating the centenary of Ireland's greatest Tribune.—I am, sir, yours truly,

A TOWN COUNCILLOR.

MR. RUSKIN ON ART TEACHING.

Mr. Ruskin, whose works on art subjects are pretty well known, has got a pet project in his brain, which he has been for some time trying to develop into a tangible shape. Mr. Ruskin has written some very pretty books, expressed some very beautiful words, gave some excellent advice, which, unfortunately, as the world wags, could not be acted upon. Mr. Ruskin is a lover of nature and a lover of art—art of a peculiar form; he has created a taste for his hobby in the minds of many persons who think they know what art is; but we doubt if Mr. Ruskin, since he first wrote on the subject of art, has ever moulded the mind of one *practical* student, or that he can point to one disciple of his as painter, sculptor, or architect. Mr. Ruskin is wonderfully enthusiastic and, we believe, kind-hearted; he can write well, but Nature has not fitted him for an art teacher. Good may come out of his project; but the school of art that rises as the creation of his mind in an architectural sense is not fated to live. There is always something to charm or amuse in Mr. Ruskin's utterances, and though one may utterly disagree with the man, their only regret is that he wastes such a lot of fine language in shaping his theories that can never find a practical embodiment as long as society is constituted as it is. If Mr. Ruskin could alter the train of the world's thought on art matters, he might hope, but only hope, his teachings might succeed.

We extract from his publication, *Fors Clavigera*, his latest utterance on the new endowment scheme he has on hand, also his land scheme, the "St. George's Fund":—

"What, for my own part, I am about to endeavour is certainly within my power, if my life and health last a few years more, and the compass of it is soon definable. First, as I told you at the beginning of these letters, I must do my own proper work as well as I can, nothing else must come in the way of that; and for some time to come it will be heavy, because, after carefully considering the

operation of the Kensington system of art teaching throughout the country, and watching for two years its effect on various classes of students at Oxford. I became finally convinced that it fell short of its objects in more than one vital particular; and I have, therefore, obtained permission to found a separate mastership of drawing in connection with the art professorship of Oxford; and elementary schools will be opened in the University galleries, next October, in which the methods of teaching will be calculated to meet the requirements which have not been contemplated in the Kensington system. But how far what these, not new, but very ancient, disciplines teach, may be by modern students, either required or endured, remains to be seen. The organisation of the system of teaching, and preparation of examples, in this school, is, however, at present my chief work—no light one—and everything else must be subordinate to it. But in my first series of lectures at Oxford I stated, and cannot too often or too firmly state, that no great arts were practicable by any people, unless they were living contented lives, in pure air, out of the way of unrightly objects and emancipated from unnecessary mechanical occupation. It is simply one part of the practical work I have to do in art teaching, to bring, somewhere, such conditions into existence, and to show the working of them. I know also, assuredly, that the conditions necessary for the arts of men are the best for their souls and bodies; and knowing this, I do not doubt but that it may be with due pains, to some material extent, convincingly shown; and I am now ready to receive help, little or much, from any one who cares to forward the showing of it. Sir Thomas Dyke Acland and the Right Hon. William Cowper-Temple have consented to be the trustees of the fund; it being distinctly understood that in that office they accept no responsibility for the conduct of the scheme, and refrain from expressing any opinion of its principles. They simply undertake the charge of the money and land given to the S. George's Fund; certify to the public that it is spent, or treated, for the purposes of that fund, in the manner stated in my accounts of it; and in the event of my death, hold it for such fulfilment of its purposes as they may then find possible. But it is evidently necessary for the right working of the scheme that the trustees should not, except only in that office, be at present concerned with or involved in it; and that no ambiguous responsibility should fall on them. I know too much of the manner of law to hope that I can get the arrangement put into proper form before the end of the year; but I hope, at least, on the eve of Christmas day (the day I named first) to publish the December number of *For's* with the legal terms all clear; until then, whatever sums or land I may receive will be simply paid to the trustees, or secured in their name, for the S. George's Fund; what I may attempt afterwards will be in any case scarcely noticeable for some time; for I shall only work with the interest of the fund, and as I have strength and leisure. I have little enough of the one; and am likely to have little of the other, for years to come, if these drawing schools become useful, as I hope. But what I may do for myself is of small consequence. Long before I can come to any convincing result, I believe some of the gentlemen of England will have taken up the matter, and seen that, for their own sake, no less than the country's, they must now live on their estates, not in shooting time only, but all the year; and be themselves farmers, or 'shepherd lords,' and make the field gain on the street, not the street on the field; and bid the light break into the smoke clouds, and bear in their hands, up to those loathsome city walls, the gifts of Giotto's charity—corn and flowers.' In a note, Mr. Ruskin says:—'Since last *For's* was published, I have sold some more property, which has brought me in another ten thousand to tithe; so that I have bought a second thousand Consols in the names of the trustees—and have received a pretty little gift of seven acres of woodland, in Worcestershire, for you already—so you see there is at least a beginning.'

NOTES OF WORKS.

The new Catholic Church of St. Mary, Portlengone, was dedicated on Sunday last by the Most Rev. Dr. Dorrian. The sermon was preached by the Very Rev. Richard Marner, President of St. Malachy's College, Belfast.

Teemore School-house, county Cavan, has been considerably enlarged. The cost has been defrayed by the Earl of Erne.

The Methodist Chapel, Ballymena, which for several months past has been undergoing repairs, was re-opened on Sunday last.

The new Theatre Royal, Belfast, will open on the 25th inst. It is being erected from plans by the late Mr. Charles Sherry, which Messrs. Lanyon, Lynn, and Lanyon are energetically carrying out, with the assistance of Mr. S. P. Close. Mr. Thomas McKeown is the contractor.

On the 5th inst. a large assemblage of the gentry of the county Monaghan were present at Castleblayney, to witness the ceremony of laying the first stone of a manse by Mrs. Hope, the owner of this large property. On her arrival at the site, she was warmly greeted by the parishioners, &c., and, being presented by the Rev. Joseph McAskie with a handsome silver trowel, performed the ceremony in a most graceful manner. Mrs. Hope and Lord Templeton have largely contributed to the building, which will be in the Gothic style of architecture. The designs, &c., were prepared by Mr. John Murray, architect, Dundalk. Mr. W. Belshaw, of Armagh, is the builder.

PLASTER WORK AT THE PROVINCIAL BANK, COLLEGE STREET.

In our recent and former notices of this building (of which an illustration was given with our last issue) we inadvertently omitted to state that the greater portion of plaster-work thereat was executed, in a highly creditable manner, by Messrs. Hogan, and Son, Great Brunswick-street.

MISCELLANEOUS.

LOANS FROM BUILDING SOCIETIES.—One of the strongest objections urged against benefit building societies is the high rate of interest frequently charged upon loans, and the formidable penalty which attends the participations in their benefits. Nominally, of course, the interest asked appears low; but, as a rule, it is practically from 10 to 20 per cent., and the building societies too often take pains to conceal this fact from the borrowers. This is illustrated by a paper laid before the Friendly Societies Commission, which shows that a person, who ought well to understand the nature of borrowing money, borrowed £500, and for this money, in twelve years, he paid £1,002. The system, we fear, fructifies on deception. Dr. F. E. Bowkett explained to the Commissioners how the deception is practised. A society offers to lend money at 5 per cent. interest. 'The people who borrow fancy they get it at 5 per cent.; but they really get it at 17 per cent.," and Dr. Bowkett believes "there are none less than 15 or 20 per cent." It is, however, their own fault if investors thus allow themselves to be blindfolded. Nothing can be easier than to calculate the amount of the monthly payments they would make over the series of years for which the loan extends, and compare the total with the amount required to be borrowed.—*Globe*.

An ancient tomb, believed to be Phœnician, has been found in Malta, near Civita Vecchia. It consists of an oven-shaped excavation, 4ft. 3in. high in the centre, and 9ft. 5in. in diameter. In the midst of this tomb lies a plain stone chest, or sarcophagus, hewn from a solid block of sandstone, 5ft. 11in. long, 3ft. broad, 1ft. 9in. deep, and the sides are 4in. thick. The entrance was closed by a thick flag of stone, having one corner broken off, possibly by its first discoverers, as the tomb had evidently been entered before. Nothing was found but the uncovered stone chest, a brass anklet of apparently great antiquity, a piece of a clay lamp, and some human bones. No inscription of any kind was found.

A fine arts exhibition is being got up at Calcutta under the auspices of the council of the Dalhousie Institute. It will probably be opened in December, and continue till January.

For the situation of caretaker of the new Municipal Buildings, Belfast, there were no fewer than sixty-one applications. The committee appointed James Johnston, at present one of the wardens in the Lunatic Asylum.

At the last meeting of the French Academy of Sciences a paper was read by the Abbe Richard, on certain stone implements found by him in Egypt, on Mount Sinai, and in the tomb of Joshua. The sepulchre was discovered in 1863 by M. Guerin, and its authenticity was subsequently confirmed by M. de Sauley.

Workmen are still actively engaged in repairing the monument of the city of Lille in the Place de la Concorde. According to the *Monde*, the site of this statue evokes some painful reminiscences. In 1793 a restaurant stood on the spot, with the sign of "La Guillotine," and the private cabinets on the first floor were in great request as affording an excellent view of the scaffold in the centre of the Place. On each table, by the side of the bill of fare, the waiters used to place a list of the traitors who were to be executed that day. Courbet (a member of the Convention) relates in his memoirs that Robespierre breakfasted there on the day when Danton was sacrificed. Some little time after the terrace was crowded to witness the execution of Robespierre himself.

A correspondent of the *Leeds Mercury* gives an interesting account of a rather unknown and neglected (because in an out-of-the-way locality) Druid's temple, some seven miles from Pateley Bridge, in an almost perfect state of preservation. "The outside walls (which are 132 yards in length) are composed of enormous single stones, with steps round the outside supporting them. Inside the temple are a huge block, probably for sacrifices; a column; an altar beneath an oak at the end opposite the entrance; six recesses, formed by two gigantic stones with one at the top; on each side six single stones, near the walls; four large blocks of stone, two on each side, stood near the centre. Leading out of the temple is a dining-hall, with a long stone table and four stone seats at each side of it. Leading out of this again is an inner chamber, covered over, containing eight stone seats. On the top of this inner chamber large stones are piled and oak trees are growing. Farther on beyond these trees, stands a single large stone with many small holes bored in the top of it, supported by smaller stones. Farther on still stands a gigantic column, about thirty feet high, composed of 16 large stones; round this column is a double circle of 12 stones. Everything is in the highest state of perfection and preservation—the stones do not appear to have been even moved from their places."

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

TO CORRESPONDENTS.

THE PRESENT STATE OF ART, LITERARY, AND THEATRICAL CRITICISM IN IRELAND.—The next issue of the *IRISH BUILDER* will contain a paper on the above important subject, pendant to "Native Literature and the Publishing Trade."

QUACK ADVERTISEMENTS AND ADVERTISERS.—Pressure on our space obliges us to postpone our article on this subject. It is a deadly cancer, and has for a long time been eating into our social system, corrupting the bodies and damping the souls of our people. The cancer must be cut out. Public or private morals must be always loose so long as Journalism lends its assistance to support iniquity and live and traffic on its proceeds. Until a public prosecutor is appointed, the evil will not be entirely stamped out; but, in the meantime, we will do our duty by publicly exposing the newspaper receivers and vendors of public filth and fraud in Dublin and elsewhere in Ireland.

"LIVES OF IRISH ARCHITECTS."—R.H.A. desires to state, through the columns of the *IRISH BUILDER*, that many new particulars have come to his hand from various quarters respecting several Irish architects of note. He is thankful to his correspondents, and will suitably acknowledge their favours in due time.

THE SQUARES OF DUBLIN.—We will feel it necessary shortly to have something to say on the management and condition of the public squares of this city. At present we must protest against the spirit of exclusiveness that governs their direction. Sooner or later an alteration must be made, and the general public, poor as well as rich, must claim the right of way. They must be thrown open; the public health requires it, and vested interests must not be allowed to put up barriers against public right.

PUBLIC SWIMMING PLACES.—The patent slip and island was, a few years ago, a most refreshing, clean and agreeable place to bathe. Unfortunately it is so no longer. The island is gradually disappearing, and filth and mud round its precincts is fastly increasing. The Corporation is called upon to provide one or two proper free bathing-places within a reasonable distance of the city. We see no difficulty in the way.

A MEMBER OF THE MECHANICS' INSTITUTE.—The *IRISH BUILDER* represents no political party. It is an independent organ of architectural, engineering, mechanical, sanitary and social thought and progress. It advocates, of course, native unity and harmony amongst all classes, for the purpose of national industrial interests.

A BATCH OF NEW SUBSCRIBERS.—We have great pleasure in informing our readers and advertisers that we have added a considerable number of new subscribers to our list during the last two months. New and old friends are warm in their congratulations on the improvement noticeable in our pages. Thanks to all.

WATCHES AS A BRANCH OF FINE ART MANUFACTURES.—Having extended our search through the West-end and the City after an ordinary good English watch, possessing an artistic design, we have come to the conclusion that but very few of our English watch manufacturers have yet properly appreciated the advance of the public taste for a higher order of ornamentation from improved designs. Small though the watch is, it yet affords ample scope for the display of the genius of an artist. It is, therefore, with much pleasure that we can mention one manufacturer who has given special attention to the artistic ornamentation of watches, and whose productions manifest a decided advance in regard to rules of art and the requirements of an educated taste. The manufacturer here alluded to is Mr. J. W. Benson, whose recently enlarged show-rooms at Ludgate-hill and Old Bond-street, London, form one of the conspicuous features of this great city thoroughfare. The display of gold and silver watches, together with ornate clocks of rare designs, is quite imposing to the passer-by. Here the purchaser of a watch is afforded every facility of choosing one suited to his purpose and his means, and possessing at the same time all that can be desired in finish, taste, and design.—*Globe*. For prices of Watches, Clocks, Jewellery, Chains, &c., see illustrated pamphlets, post free for two stamps.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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*The Public Squares of Dublin ;
Their Free Opening and Improvement.*

NOW long yet, may we ask, are the squares of Dublin to be barred against the entry of the working classes of this city? Are the monthly nurses of our gentry, the morning governesses of our well-to-do people, and the general nurses and poodles of the late-rising and late-go-to-bed inhabitants in the vicinity of our squares to enjoy a perpetual privilege and monopoly in the use of our public squares? They were never intended for such a purpose. They were designed for the health and improvement of our city, as lungs when our metropolis increased in extent and population, and the available lands within easy reach of our city were transformed into house property. Since the beginning of the present century the public squares of Dublin have been seized upon and exclusively monopolised by a few resident inhabitants, and the directorate who have managed them have heretofore resisted all attempts for throwing them open for the free use and recreation of the people. An end must be put to this stupid and stubborn opposition to public right. Almost every square in London and Paris of any useful size has long since been freely opened, and there is not one public park in London which is not really and truly a public park in substance and fact for the use of the population. Why should the directors of St. Stephen's Green, or the managing boards of Merrion, Fitzwilliam, or Mountjoy Squares be allowed to fling defiance in the face of those who honestly call for the free opening of these squares? Why does not the Corporation of our city at once make an earnest move in the matter? If they do not, the remedy is in the hands of the people themselves. A proper and influential memorial to the Government, and an introduction of a motion by an Irish Member of Parliament, backed up by a few other members, would soon settle the question. The Press of the city could also assist in the good work. It is their duty to do so, and they will be much remiss if they fail in performing it.

The squares of Dublin, from their size, are capable of vast improvement, but they have been shamefully neglected. The manner in which they were originally formed and planted could not be much worse than it happened to be. Merrion Square was laid out and the work performed by contract. The soil in which the trees were planted was mostly taken from the foundations of the houses built around, and every sort of rubbish was buried below. None but the most hardy description of trees survived the first, or indeed several subsequent plantings. Thorns, dogwoods, lilacs, laburnums, and some hollies, have grown and struggled hard for an existence, and barely succeeded in the attempt. If the bad clay had been exchanged for two or three feet of vegetable mould, evergreens could originally have been planted at once, and would have thrived. Often the withered grass of Merrion Square in days not very remote was allowed to lie to act as

manure for the meadow of the next season. So neglected was the condition of Merrion Square at one period that a public writer in one of the reports of the Dublin Society's publications wrote—"Indeed there would be an inconvenience in keeping it neat; *carpets could not be beaten in it, nor could all the dirty dogs of the town clean themselves so well as in the long, withered grass*; few people would be surprised if cows were taken in to graze by the week."

Mountjoy Square was originally laid out on the same beautiful system as was practised in Merrion Square, and the same effects were subsequently observed. The trees and shrubs never thrived. It has often been said that the smoke of the city prevents the evergreens from living. This is an erroneous idea. The cause of them not thriving is from the badness of the soil in which they have root, and an ignorance of their mode of cultivation.

Evergreens and flowers of almost every description are found to thrive in the parks of London and Paris—cities far more smoky than Dublin. Fitzwilliam Square is similarly cared for as the other two squares, and very little taste is evidenced in its arboriculture or horticulture.

With respect to St. Stephen's Green, which was at one time reckoned one of the largest squares in Europe, much with advantage might be written. From its extent it is capable of any and every modern improvement—of lake, fountain, artificial ponds, grotto-work, shrubberies, flower beds, morning swimming-places, lakes for pleasure rowing, and a beautiful arrangement of walks, rock-work and plantations. As a public park, in the heart of the city, it could be made, by the control of the Government, one of the most beautiful and enjoyable places in the metropolis. Instead of that its management is a libel on good taste, and its condition a stigma on the capital of Ireland. St. Stephen's Green, as the largest and principal square in our city, must receive first attention in view of its free opening. Whether the Corporate authorities move in the matter or not, a move must be made independent of their aid. Do the poor and threadbare-clothed and delicate-looking creatures who are obliged to walk around outside our squares in search of a mouthful of fresh air, stink in the nostrils of the richly attired? Would the meeting of these poor creatures inside the railings of St. Stephen's Green be more annoying to super-sensitive eyes and noses, than coming in contact with them outside? In St. James's Park, Hyde Park, the Green Park, Victoria Park, Kensington, Richmond, and Kew Gardens, in London, rich and poor pass along, and one is not offended at the other's presence. Why is it otherwise in "dear dirty Dublin"? Are the Dublin "snob," "buckeen," "shoneen," "fop," and "half sir," more exquisite specimens of the human species than their counterparts in London? or are the young damsels, belles, or boarding-school misses, and antiquated spinsters here so *recherché* in colour and composition that they would faint and melt away at the approach of a mere *ouvrier* in our public squares. Shame upon such unmanly and unwomanly sentimentality wherever it exists. The true lady and gentlemanly-bred person despises such cant. It is only your "stuck-up" people who nurse such nonsense in their heads.

The agitation of the opening of St. Stephen's Green as a public park for our

citizens in general must be commenced *de novo*, and not given up until the object is accomplished. When properly laid out and intersected with walks, beautified by trees and flowers, and supplied with a sufficient quantity of garden chairs, that the tired and weary may rest—when water is poured in fresh and pure to the lakes and ponds, and God's humblest creatures can enjoy themselves with the sight of its natural and artificial charms—when these things can be seen and witnessed, then and then only will St. Stephen's Green be what it ought to be. To accomplish this, our best energies will be henceforth directed, and we ask the united assistance of the middle and working classes of Dublin to help out the good work.

It is a question, too, whether the College Park on particular days should not be entirely free to the public within a certain radius, but we care not at present to discuss that question, so long as the other squares are closed in the face of the general mass of the community. For the free opening and improvement of St. Stephen's Green let the first blow be struck. Rally, then, hard-working citizens of Dublin; with more open spaces in your midst, where your children can enter for an hour or two morning and evening, instead of being hosed up in filthy and pestilential courts, the health and strength of our population will improve. With the purification of the Liffey, and the free opening of the public squares of Dublin, sanitary improvement will have made one giant stride in the right direction.

THE LATEST ENGINEERING TRIUMPH.

THE Mont Cenis Tunnel is now an accomplished fact, and the historic Alps is rendered more historic than ever by the successful completion of the greatest work of engineering skill in modern times. The military glory of Hannibal; the indomitable energy and courage of Napoleon; and the primitive chivalry and conquests of Dathi, Ireland's last pagan monarch, who fell struck with lightning in his war-harness at the foot of these very Alps, is eclipsed. Science and workmanship have pierced the adamant barrier which for long ages kissed the clouds in its eternal canopy of almost impassable snow.

Projected by the Sardinian Government, in 1857, and begun in the early part of the following year, fifteen years was allotted for its completion. It has been completed within the period assigned. The invention of new mechanical appliances, such as the boring-machine, worked by compressed air, gave a wonderful impetus to the work, since its introduction a few years ago. Eight miles of railway tunnelling through quartz, anthracite, limestone, dolomite, and other compact bodies of spar, minerals, and petrifactions, 11,000 ft. under the peak of Le Grand Vallan, is certainly a marvel in engineering, suggestive of deep thought.

The work in 1857 was prepared for by a trigonometrical survey, and the axle, so to speak, of the contemplated tunnel, was traced with wonderful exactitude from observations taken from 5,000 to 10,000 ft. above the sea level. Observatories had to be erected, hid in the clouds, subject to varied atmospheric influence or fluctuation. The perfection of the survey is proven in the meeting of the tunnel, the cutting of which proceeded from the beginning in its execution from either side. France and Italy are now next-door

neighbours—the French and the Piedmontese lowlands are within twenty minutes' reach of each other, and of the more generally known European capitals, the citizens of each can exchange courtesies in a few hours by means of the Mont Cenis Tunnel. The importance of the Suez Canal is enhanced henceforward in a commercial point of view; and these two works combined, the outcome of French and Italian genius gives ample proof that foreign energy is not confined to British shores. Our Watts and Stephensons hold no longer undivided honours; nor can their successors in these islands, able though they may be, hope to hold their own, if they can only imitate their predecessors within these shores. Signor Grattoni and M. F. de Lesseps are names linked with two daring but triumphant achievements, reflecting honour upon themselves, and upon Italy and France.

In the formal opening of the Mont Cenis route, which took place upon the 17th ult., Frenchmen and Italians have need to be proud, and we can rejoice with them, though our nation as a dependency cannot diplomatically have her say. England has need to rejoice also, for whatever contributes to the comfort and intercourse of one nation, be it transatlantic or continental, must also contribute to the prosperity of these western islands.

The latest engineering triumph, though marvellous in conception and almost miraculous in execution, is neither the greatest nor the last this generation or the next is fated to witness. There are still engineering feats in embryo in the brain of man and the womb of time, which would be accounted insanity to whisper about; but the day and hour will arrive when the mystery of their madness will be unfolded in their practical accomplishment, to the greater honour of science and art. The inland engineering exemplified in the cutting of a canal was once thought great; the construction of a railway—its deep cuttings and steep gradients, and its quarter or half mile of tunnelling was considered a wonderful labour. The spanning of a canal or a small tidal river with an iron lattice or girder bridge, evoked surprise, and secured honors or knighthoods for their lucky projecting engineers, but this class of work is henceforth ordinary practice and no more.

Gunpowder has had many, many curses heaped upon it since its invention, but we question has it ever been used in a more glorious undertaking than blasting the bored rocks in the heart of Mont Cenis. Though this gigantic work was not prosecuted to its completeness without the loss of life, yet how infinitesimal has been the sacrifice compared with the demon of war. Miners have perished, and families have no doubt mourned their loss, but the chapter of accidents is not illustrated by scenes of murderous strife, ruined homes, depopulated villages, crippled trade, and national bankruptcy. The cause in which the soldiers of labour met their death was a righteous one, and the victory to which they contributed, and their brothers consummated, is unstained by crime! May we have many such victories in the interest of civilization and industrial progress.

Let us marvel no longer at the genius of Greece or the science of early Rome. If we would excel the one in art and the other in engineering, we must not be cold imitators; but while conserving all that is grand in one, and maintaining all that is perfect and practical in the other, improve our knowledge,

and apply it by the aid of science in fresh fields. Our modern architects and engineers have had the theory to their hands, and good examples before them—they had not entirely to create rules and methods, but to adapt, reform, and apply these methods, subject to changed circumstances, and with the aid of newer powers. Science is ever at their call, all powerful and ever willing to afford unerring information for guidance. The science by which we read the planets, construct a chart of the heavens, map out the soundings of the ocean, and flash a thrill through its depths from pole to pole, is that same science which begets technical knowledge, and enables man to be more useful to his fellow-man, whether he be an architect, an engineer, craftsman, or the humblest tiller of the soil.

THE VAL DE TRAVERS ASPHALTE IN DUBLIN.

THE establishment of an Irish Val de Travers Company for the purpose of introducing the asphalt material, and constructing our chief line of streets with it, which are subject to the heaviest vehicular traffic, and to render the material, in a word, generally useful and serviceable, is an important subject, and demands at our hands a careful consideration. In what we write we speak from an especial and a practical examination of the roadways already constructed with asphalt in London and elsewhere. Cheapside, Broad-street, Gracechurch-street, Moorgate-street, and several other thoroughfares in London have been laid with the asphalt material; and of the improvement effected there is no second question. Cheapside is one of the radial arteries of the city of London, in fact, it is the radial artery of that mighty city, running from east to west, through the heart of the capital. On account of its position, it is subject to the heaviest and most incessant daily and nightly vehicular traffic of London. This thoroughfare has been laid down upwards of a twelvemonth with the Val de Travers material, and it has never once had to be repaired in any shape. The asphalt has preserved its hardness and evenness, less accidents have resulted in collisions or in the falling of animals, and where before existed a perfect Babel of deafening sounds, almost what may be called perfect noiselessness now may be said to reign. To test the truth of our statement, any visitor to London has need only to enter an omnibus at the Mansion House, and ride to the Post Office and feel the effect. Let him, however, continue his journey through Newgate-street and on to Holborn, and feel the reaction on his nerves over the old pavement. The Val de Travers Asphalt is undoubtedly, when well and properly laid down, the most durable and economical pavement any city can possess. Whether for a roadway intended for tramways, or a roadway subject to mixed traffic, the lightest or the most heavy, it is equally applicable.

To give the non-professional reader an idea of the construction of an asphalt surface, and the material comprising it, we may simply state that asphalt is a bituminous substance or earth. In the condition it appears, when about to be put into use, it resembles a brown mould or fine powder. When about to be laid, the street or roadway is denuded of its paving-stones, the earth is excavated, and from six to eight inches of a solid concrete basis formed. When this basis is properly levelled, allowing for sufficient rise in the centre to carry off the water, the asphalt material is laid with heated irons, to the depth of two inches or more, as may be found desirable. The facility and expedition with which a street of half a mile or a mile long may be laid down is truly surprising.

We have often attentively watched its laying in London, and afterwards, from time to time, examined the effect of the

traffic over the roadway, so we can bear practical testimony to its value as a pavement, even when subjected to the most crushing traffic.

Discredit was caused a few years ago from the failure of what was erroneously styled an asphalt pavement or conglomerate of coal tar, inferior chalk, sand, lime, &c. Several footways, our Irish readers may remember, were laid in several parts of Dublin as well as London of this description of so-called asphalt; but, of course, they were soon found to be quite unserviceable. The heat of the sun made them into bogs, and the frost broke them up into ruts. The Val de Travers substance is rich in bitumen, and of all other introductions as yet, it is the only asphalt material that admits of uniformity in the amalgamation and compression of the particles composing it.

The traffic of Dublin falls infinitely short, even in its busiest, to that of London, and here the asphalt material may be said to have every advantage on its side. On the score of scavenging, little or no dirt remains to be removed, for no facility exists for its creation. A good shower of rain completely clears the streets, presupposing the corporate authorities perform their usual duties at night or in the morning. The polished surface that the asphalt presents in very hot, and the apparently glazy look it has in cold weather, has given rise to the belief that it must be slippery. Horses have, to be sure, come down on their knees in harness, from time to time, on the asphalt; but considerably less often than on the granite pavement, as the evidence of the drivers of the London General Omnibus Company and the "cabbies" of London have proven. On the asphalt pavement the draught on horses is considerably less, animal and mechanical plant is saved, dust and sludge are reduced to a minimum, and under the worst conditions the brush or the hose completely cleanses the street. We have no hesitation in saying that the Val de Travers Asphalt is admirably suited for the leading streets, north and south of the Liffey, which are subjected to heavy traffic. Such streets as Sackville-street, Capel-street, Parliament-street, Grafton-street, Dame-street, Henry-street, Talbot-street, Great Brunswick-street, D'Olier-street, Westmoreland-street, South Great George's-street, Aungier-street, Camden-st., Thomas-street, James'-street, the quays, and other leading thoroughfares, particularly those in the direction of our different railway termini.

Now, as advocates for Irish industrial projects and the development of native industrial resources, we would, perhaps, be better pleased if bitumen like the Val de Travers material could be procured in Ireland. Bitumen certainly exists in different parts of this country; but no bed of it is known to exist, suitable for the purpose of a street pavement. Good granite still exists, which may be extensively used for flagging and for the paving of those numerous side and back streets and lanes of our metropolis; but it seems to us advisable that our chief leading thoroughfares ought to follow suit with London and Paris, and that our city should not be a laggard in everything.

Let a portion of Grafton-street or Dame-street be laid down at once, and let the citizens of Dublin have ocular demonstration, and we are certain they will not feel displeased.

If further proof be necessary in confirmation of our statements, we here append an extract from the proceedings of the London City Corporation, extracted from the *City Press* of last Saturday:—

"ASPHALTE PAVING."

A memorial was read from the inhabitants of Aldersgate Ward, asking to have asphalt laid down in St. Martin's-le-Grand and Aldersgate-street from Newgate-street to the city boundary at Goswell-street.

Mr. Herring (one of the deputation) said that Aldersgate-street was in a very bad state, and would soon require repaving.

The Chairman said that the street was not at

present on the list of those which required to be repaved.

Mr. Deputy Fowler (another of the deputation) said that the street was paved fourteen or fifteen years ago. There were many holes in the roadway, and horses often fell down. What the inhabitants asked was, that when the street was repaved it should be with asphalt (hear, hear). He did not know the cause, but the traffic of the street had more than doubled within the last ten years. The memorial had been supported by the Post Office authorities, and signed on behalf of the principal commercial houses in the neighbourhood.

Mr. Alderman Besley remarked that Aldersgate-street had become a most important thoroughfare, and it would become still more so. As this memorial would, no doubt, be referred to the Streets Committee, he would like to point out a little additional improvement that might be made while repaving this street, and that was the widening of Jewin-street, and taking away the house which causes an obstruction at the corner of Barbican. That obstruction had become a nuisance. There were constant stoppages there, and it was most difficult to cross the street at the spot indicated.

The Chairman said they ought not to mix up this question with that of asphalt.

Mr. Alderman Besley then gave notice that he would move that the subjects to which he had called attention should be referred to the Streets Committee.

Mr. F. Cox took occasion to say that it must be most gratifying to the Streets Committee, and to the Commission generally, to find so many gentlemen coming forward and speaking in favour of asphalt. There was some doubt about it when it was first proposed, but now the testimony in its favour appeared to be general.

The memorial was then referred to the Streets Committee."

This ought to be the conclusive evidence in favour of the new material. We have little doubt but that the Irish Val de Travers Asphalt Paving Company will succeed if it gives us the same good roadways for vehicular traffic which we have witnessed in London.

Of asphalt in general, and the many uses it may be applied to, we may speak on another occasion.

THINGS NOT GENERALLY KNOWN.

THAT the Dublin Lying-in Hospital was designed by a German architect of the name of Richard Castles, and that the same architect constructed the first stone lock in Ireland on the Newry Canal.

That the architects of Ireland, as a body, are not embodied; and, unlike their English brethren, they take very little interest in the history of their profession, or in upholding its dignity.

That sanitary knowledge is indispensable to architects, engineers, and builders; and that the architect in these days who practises his profession without a general acquaintance with the conditions and laws of public health, is but half educated in his art, however talented he may otherwise be.

That Cork-hill, in its steep, long, and right angle ascent to Castle-street, is not only dangerous and cruel to animals, but that it is fifty per cent. more obstructive to the public traffic than the much-exaggerated ascent of Essex Bridge.

That the Corporation of our city know this as well as the writer, and say *they can't* remedy it, because *they won't*.

That Edward Smyth, the founder of the Irish School of Sculpture, executed the statue of St. Andrew once to be seen over the entrance to the "Round Church," and that the miserable pittance he received for its execution was not fit compensation for the most ordinary building mechanic.

That the Dublin Main Drainage scheme was designed as a speculation, launched as a *job*, and bids fair to be completed in some future generation at an enormous loss to the city, and to the immense gain of some Corporate philanthropist (bless the mark!).

That Conciliation Hall was originally built by a coffin-maker, and that the water rats often held carnival in the kitchen below, while O'Connell hurled defiance at the Saxon from his raised dais above.

That the railings at Ball's Bank were always a public obstruction, and that they are so still.

That a new street is required to be opened, leading from St. Stephen's Green, in nearly a straight line, to St. Patrick's Cathedral.

That Church-street and its continuations necessitates widening, or the construction of a new leading thoroughfare from the Inns-quay to the Broadstone Terminus.

That the city also requires a wide boulevard to be made leading right across Dublin from north to south, and that none of us need be so selfish in the matter as not to wish our posterity joy.

That the Corporate authorities of Dublin are wonderful adepts at showing how the *wind* can be raised, and of afterwards making the citizens pay the piper.

That Irish Art was stabbed almost to death by the hands of Irishmen themselves, in the press and on the forum; and that her cowardly assailants, stung with remorse at last, are making a little restitution in lip service in wooing her back to life.

That public statues ought only to be erected to public men who are an honour to their country, and whose public advocacy and services are evidenced by thorough consistency of principles.

That many sections, sub-sections, and quorums of our Corporate and public bodies resolve themselves into mutual admiration societies, for the purpose of getting up testimonials to each other in succession, at the public expense.

That Henry-street was formerly Drogheda-street; Sackville-place, Tucker's-row; and Talbot-street, Cope-street.

That St. Catherine's Church, in Thomas-street, was a Gothic structure originally, and that it was changed to its present form of mixed Doric and Ionic upwards of a century ago; and that St. John's was also a Gothic structure, but was rebuilt about the same period.

That a marble bust of Dean Swift, attached to his monument in St. Patrick's Cathedral, was sculptured by an artist named Cunningham, and was originally executed for Alderman Faulkener, of Dublin (Swift's printer), to be placed in a niche in front of his house, corner of Essex-street (Parliament-street). That the house still stands, but the niche has disappeared during some alterations effected some years since.

That an Irish antiquarian priest, in the south of Ireland, several years ago, built a round tower at the end of his own garden, determined, as he said, to puzzle posterity as antiquity had puzzled him.

That the public and national spirit of Ireland is affected with a dry-rot, and that the fungi is of foreign growth and fashion.

That carpenters, bricklayers, masons, slaters, decorators, and "handy men," *ad infinitum*, are often their own architects, to the injury of thousands; but though regular architects may be their own builders, they are seldom or ever their own mechanics.

That the so-called "handy-man" is *ipso facto* a botch, and that no botch can be a handy-man.

That civil engineers are very uncivil beings to their architectural brethren; and

that architecture is not their *forte*, though it is to their interest to know more about it, and speak less.

That the General Post Office, Dublin, has undergone many changes of late years, architecturally and otherwise, and that every alteration undertaken has resulted in the disfigurement of the building, and to the injury of architecture as an art.

That the purification of the Liffey will not be effected by the Dublin Main Drainage Scheme. It will require Job No. 2 to effect that. (N.B.—Don't ask Mr. Bazalgette or Parke Neville's opinion; they will *floor* you with figures).

That a good deal of the materials, and a large portion of the contract for execution and supply connected with the sewerage works of Dublin, are already promised to be *managed* for parties outside this country.

That the rebuilding of Carlisle Bridge is attempted to be shelved for the present, not for the reasons publicly stated, but for reasons which will be soon manifested, but not expedient just now to have stated.

That the whole of the above statements are true in substance and in fact; and that the truth about the majority of them, if not all, ought to be among the

THINGS MORE GENERALLY KNOWN.

THE SOCIAL SCIENCE CONGRESS AT LEEDS.

LEEDS has the honour this year of the assembling of the Social Science Congress. No small honour, indeed, from the point of view in which we look at it, or from that point from which it should be viewed by all those interested in the sanitary and social elevation of the great mass of the population of the three kingdoms. We would that Dublin could hope to look forward to such a meeting by the Liffey next year, or the year after. The town of Leeds is a populous, thriving, and wealthy one, and her people will learn much this year which they have heretofore been strangers to. Although Leeds has made, within this last decade, many improvements, her sanitary aspect is not above reproach, and in the construction of many of her streets, the houses which line them are to the sight anything but pleasing.

It would be needless for us, at the present moment, to direct attention to the several wants of Leeds, in presence of that important meeting about taking place in that town. We have no doubt but these evils will be discovered and alluded to by the President or other member or speakers who are interested in the Health Department of the Congress.

The Newcastle daily press last year rendered useful service in its publication of the daily proceedings of the Congress. We trust that the press of Leeds will not lack a similar energy and courage. Last year, however, war news filled the pages of the principal metropolitan and provincial journals, to the exclusion of more valuable matter; but this year the London press will not have the same excuse, so they can afford to give the public a good summary, at least, of the proceedings of the Congress.

Concerning the several presidents of the departments, it is not necessary to speak. Each and all are well qualified for their position, intellectually and socially. In our last issue we gave a list of special questions for discussion, with the names of the departmental presidents, and we have but little more to add in our present issue than wish success to the Social Science Congress at Leeds, hoping that we may live to greet it at no distant day sitting in Dublin, discussing those many important and serious social problems which perplex the mind of the age.

ART, LITERARY, AND THEATRICAL
CRITICISM IN DUBLIN.

WITH a purely native literature at the lowest ebb—with our native-born *litterateurs* and journalists in foreign fields working for a foreign market—with our country deluged for the most part with foreign literary publications of a demoralizing, effeminate, and denationalizing tendency—with a Press that gives indiscriminate praise to works bad, good, and indifferent—with public spirit dead, and public representatives and professional men leaping at each other's throats—how can an able and honest art, literary, and theatrical criticism be supposed to have an existence in this island? Let the truth be blurted out, however unpalatable it may be: the art of criticism has degenerated into downright, intolerable, and unblushing cant. At this moment there is not *one* art critic in Dublin deserving of the name; not one honest, clever literary reviewer writes in our daily journals in this city; nor is there a dramatic critic in our midst with sufficient courage and ability to stand forward and, without fear or favour, honestly dissect the plays put forward week after week on the boards of our Dublin theatres. If there are men of literary ability and honesty on our Press who can do these things, we have failed in our long intercourse to meet them in the flesh. If we libel the journalism of Dublin, we will hold ourselves amenable to the *rara avis* who steps forward in its defence, and, boldly under his sign manual, gives us a specimen of his critical ability, and his fitness for his task. The trade of literary reviewing in London also is not above reproach, but in that mighty labyrinth of concentrated intellect, able and honest criticism exists to a limited extent, and the lover of good books knows in what quarter he may look for a faithful exposition of the merits of a new work, whether it be on art, theatrical, or a mere literary subject.

We fear much that the "free list" in favour of the Press at our theatres, and the liberality by which advertisements are given, have much to do with the character of the lavish praise so often bestowed on the most worthless productions.

If proof be wanting, let any intelligent person run his eye down the columns of our daily Press, and he will not fail to discover evidence sufficient to convict the whole tribe of our theatrical critics of their utter incapacity for the tasks they have essayed. The truth is disguised, rigmarole and bombast bespatter the page, and actors and actresses are bedaubed with the most fulsome flattery. If the whilom bill-poster or itinerant *Punch* and *Judy* stroller takes to theatricals, and fits up a public hall in our midst to air out the consumptive and asthmatical cast off tag-rag-and-bobtail of our British concert halls, we have a Press who will welcome them, and applaud their sepulchral extravaganzas, if the "Company will only stand a good advertisement."

This kind of theatrical criticism thrives, the Press winks at it, and thus Dublin is often obliged, in ignorance of the fact, to support the worn-out libertines and haridans of the stage. Who will deny it? We challenge refutation, we court contradiction, for opposition will be our opportunity. How many of our so-called dramatic critics have read the plays they attempt to criticise? Is there one who does so? Is not the play-bill and a few hints from the manager, or prompter, or other party, the sum total of their information? and yet these penny-a-lining play-goers, many of whom sup and drink with the actors, go home and dash off a few hysterical, maudlin common-places on the *débat* of this and that actor or actress, and the "highly finished" performance that our said dramatic critic never witnessed. Then comes the description of "Benefit night." This is sure to be something gorgeous—Signor or Madam, the public are told, "outdid herself; was twice called before the curtain, and pelted with bouquets." Perhaps rotten eggs, in many cases, if it were allowable, would be the proper *dénouement*

to the theatrical imposition inflicted upon Dublin.

We cannot resist writing strongly upon the matter, for, indeed, the theatrical illusions, impositions, and theatrical criticism holding sway in this city are a disgrace to our civilization, and a dishonour to our journalism. Dublin once could boast of good native actors, and gave welcome to talented foreign ones, but the occasions are few and far between when really good actors visit us and abide with us for any lengthened period.

If clever and unknown to fame, the public are in doubt unless they go to see for themselves, for relying upon our newspaper criticism is like relying on a rotten reed, for good and bad actors are measured out a certain quantity of praise, according to their position and the characters they personate.

Let it be distinctly understood that we entertain the highest respect for the drama—good dramatic talent and the influence of the stage when under creditable management. Our city of old made many sacrifices to support the Irish drama, and even at present our citizens, when left to themselves, without any dictation or tutoring on the part of interested critics, will soon find out the value of a theatrical performance, and coudemu it or applaud it as it deserves. If only one daily journal in our city were to step forward, shaking off the moral leprosy of its past life, and gathering round itself an upright, gentlemanly, and scholarly staff, what a grand mission would not be before such a journal? With such a journal true and talented dramatic criticism would be possible; but falsehood is found to pay better, and black no more than "white lies" in newspaper criticism, are not considered to militate the least against the critic's worldly respectability or his future salvation.

Coming to the subject of literary criticism or book and pamphlet reviewing, we have not one able literary review or register published in this city. Our journalistic literary reviewers, who do the needful for our newspapers here, are unfitted by nature and art for the duty. The unfortunate newspaper sub, or the hack and general factotum of the establishment, or the poor author or versifier who has whistled on every gamut of the flute, until consumption overtook him and marked him for her own, perhaps one of this class, whose face is known in every newspaper office, is called upon to do a bit of reviewing. With little food in his body, but with an abundance of mental pabulum that needs a stimulant to awaken it to action, this individual will betimes do marvellous work, but he cannot be relied upon always.

The other general run of critics are "maids of all work." Give them a book on philosophy, a novel on the Lunacy of Love, a Manual on Architecture, a Dissertation on the Integral Calculus, a Treatise on Bachelor's Buttoes, and the Alimentary Properties of Vegetable Marrow—on any of these subjects our general class of critics here have only need to open the books sent for review, read the title-pages, transfer the name of the printer and publisher, and, as a final precaution, to ask, have any advertisements come to hand from Hookhim, Nailhim, Clinkhim and Co.? If so, the character of the review is decided.

The ordinary class of reviews of books is nothing more than patent and insufferable trash. A few sentences strung together, accompanied with an extract or two, but about the merits or demerits of the publication or book in question, your reviewer knows absolutely nothing.

A work on Architecture or Civil Engineering is sent into the office of one of our daily journals. Who is there, fitted with professional capacity, to examine and pronounce upon the work? Unless some city architect or professional man is asked to write a notice of such a volume, or volunteer to do it from friendly relationship, such a book is fated to be passed over by a simple acknowledgment. Our colleges can certainly produce critics fitted for the task of reviewing different kinds of works, and the legal and medical profes-

sions have amongst them many clever men of literary and critical acumen, but these men do not review literary works for the daily or weekly journals of Dublin. Very seldom, indeed, are we able to meet with anything at all approaching to a fair, searching, and withal impartial criticism of new works on the Dublin Press. It is laughable, yet provocative of anger, to witness the wretched performances placed before us as "reviews." Half a dozen of works at a time are often noticed in the one half-page by the one so-called reviewer—works, be it understood, of the most diverse kind. The self-constituted pseudo-critic dispenses a modicum of praise to each and all, though of the majority of the works he pronounces judgment upon he knows in reality no more about than the infant in the cradle. When will authors, publishers, and the public use a little discrimination in their selection and approval of publications? It is time that sham journals and sham critics should be exposed, and the reign of justice and truth be reinstated. Give us scholars and gentlemen on our Press, or those whose hard study or self-culture have conquered for themselves honourable recognition. Purify the Press, and make it an exemplar of all that is noble, and not an engine of vice and corruption. If this improvement does not proceed from journalism itself, the public must exact it. In this age of sanitary and social improvement, the Press must practise rectitude as well as preach it.

In the matter of Art-criticism, we have no public journal in Dublin capable of performing the task; at least we know of no Art-critic on any one of them with a sufficient knowledge of art-subjects as would warrant him in assuming the office of censor with safety to himself or the interests involved.

The notices that annually appear in our journals respecting the art exhibitions at the Royal Hibernian Academy are not creditable to Irish journalism in this city. Pictures are praised, but the merits of the paintings are not analysed. No technical knowledge is evinced. A prosy enumeration of the works on view is given, but the catalogue affords as much practical information as the critic who strides through the Academy's halls to take a passing look, and passes out again to jot down his impressions, if he has got any above the merest clap-trap. We are told, indeed, that the background of this and the "foreshortening" in that is admirable; that a certain sea scene is "grand," and a certain landscape is a "miracle of art," heralding the certain future fame of "a rising artist." The said artist, perhaps, has been "rising" for the last quarter of a century, and has failed to raise himself or his paintings above the reach of mediocrity.

The portraits of Lord Tomnoddy and Alderman Biblemouth are instanced as "life-like and striking." Countess Pinafore and Lady O'Mulligan "breathe with a warm feeling and a charming simplicity." Happy husbands, who own such possessions in the flesh! A scene on the Dodder "shows the old immemorial path by the river," sacred, perhaps, to loafers and idlers as well as lovers' trysting; but the gem of the collection in the realm of portraiture is Chief Justice Shallow. A pity is expressed by the critic that it is marked "unfinished." Criticism is at once disarmed, for who would narrowly criticise an artist's unfinished performance?

Whatever capacity the art-critics of our city Press have for reviewing the merits of paintings, they possess absolutely none at all for the task of describing architectural and sculptural efforts. Architectural drawings and details are a sealed casket to the critics on our political journals, and it is a piece of impertinence on their part to foist their crude opinions on the public in this matter. What does your ordinary *penny-a-liner* know of plans, elevations, orders, styles, capitals, volutes, mouldings, friezes, architraves, or entablatures in general?—absolutely nothing. A pediment to him is a pediment in name, and so is a pitchfork a pitchfork; but of the suitability

of a building for its intended purpose, or whether the architect of the drawing adopted or ignored the canons that govern true art, the critic of our political daily Press is in absolute fog. This also holds good in respect to statuary. A public testimonial or a statue may look pleasing to the ordinary eye, but to the man of artistic taste and art-knowledge its defects, if it possess any, are at once apparent—so is also its beauty and the harmony that exists between the pedestal and the figure on the other parts. When Moore's Statue was first erected in this city, some of our journals bespattered the artist and his work with lavish praise. Subsequently when it had to be altered, to appease outraged public opinion, these same journals modified their praise; but we question if one of them at this moment would have the hardihood to say that this Moorish ogre opposite our old Parliament House is a work of art. Hogan, whose beautiful design was discarded, was covertly attacked by the same imbecile critics, but when in despite of their censure he mounted the ladder of fame, the reptiles twined themselves round his limbs, and slavered him with praise. What a pity power was not given to him to crush their serpent heads, and thereby prevent them from procreating their species.

Let us ask how often are the studios of our few resident artists visited by the representatives of our daily Press? We hear of London and American painters, and sculptors, and architects pretty often. We hear their works extolled, and their smallest efforts magnified. We are glad to see ability in every quarter assisted to live, but why should talent at home be allowed to pine and perish away from off the soil? Why should native artists be ignored and their worth damned with faint praise, or denied that recognition when deserving? Why? It is because the so-called leading journals of Ireland are in the hands of the wrong parties, and every public interest is sacrificed for personal gain. The knowledge and truth that should circulate among the community is suppressed, or left to work its way from mouth to mouth. Native industries have the cold blanket flung upon them, and publicity can only be purchased in infinitesimal quantities by a liberal dispensation of hard cash. Your moral journalists despise the struggling artist; but when he is a power in the land, if he only lends his name for the adornment of a paragraph, they will lick the very dust from his shoes.

We boldly and openly impeach the majority of the conductors of public journals for their chronic misdemeanours, and for the abuses they allow to continue in connection with their profession. We earnestly protest against the present system of criticism by the Press as both dishonest, dishonourable, and disreputable. True art, literary, and theatrical criticism we have none, and what exists in our midst is but a make-believe. As journalists ourselves we feel called upon to proclaim the truth, and though we stood alone we will never cease in our endeavours till an improvement is visible, and a death-blow given to the reign of literary and art criticism as it now exists. We have no prejudice against any particular party or journal, critic, or other newspaper contributor; our object is to redeem the Press from its sins, and help it as an humble but honest ally in the cause of advanced educated opinion.

Our journalism of to-day needs an increase of literary excellence as well as morality, which can only come through men of lofty aims and cultured intellects,—men who will feel it their duty to gather around them a respectable and talented class of writers, with special capacity for their allotted tasks. It is the sheerest folly to suppose that falsehood and incompetency can create public opinion, or unscholarly criticism can influence any but the most shallow minds. We end as we began by declaring that honest art, literary, and theatrical criticism in the capital of Ireland there is none. The Press does not encourage it, and at present they lack men of ability to do it.

A public exposure often leads to important reform, and a reform is the advent of more decided improvement. Thus are the evils of society and the wrongs of the world redressed; and with that honest aim in view we deal a deliberate blow at one of the most mischievous abuses of modern journalism.

DUBLINIENSIS.

MEDICAL QUACKS: THEIR DUPES AND NEWSPAPER SUPPORTERS.

FIRST NOTICE.

THE receivers of stolen goods, in the eye of society and the law, are accounted as bad or rather worse than the thieves. If the house-breaker, shop-lifter, or those unfaithful servants and assistants who plunder their masters and mistresses, had no vile den to resort to where they could secretly dispose of their booty, robberies would be more sparse. It is so with medical quacks, turf sharpers, and sham money-lenders. If no disreputable newspaper existed to give them facility in advertising their pretensions, their trade would collapse, or be confined to very contracted limits. Some few years since the *Lancet*, an influential and respectable medical journal in London, exposed the nefarious doings of quack doctors and their agents. The *Medical Press*, in a series of papers, also gave a fearful and terrible exposure to the principal well-known London charlatans, who for years have openly, covertly, and systematically carried on their obscene and abominable work—working on the fears of the weak-minded, plundering them of their money, crushing their spirit, and entailing indescribable misery upon them, their family, and relatives. The *Medical Press and Circular* again of this month returns to the exposure, adding another hideous example to the long list of bloodsuckers and their dupes who are swelling the catalogue of criminality and seething corruption, which is turning the land into a second Sodom and Gomorrah. The *Medical Press* deserves the commendation of the profession of which it is an exponent, and also the thanks of the general public, both in Dublin as well as in London, for its courageous action. In London for many years there is a regular organized system of fraud in medical quack advertising carried on, and many of our Dublin daily newspapers and provincial ones are fattening on the proceeds of the money they obtain through the London and Irish agents of these nefarious swindlers. It would be, perhaps, invidious on our part to point out one or two Dublin journals as the principal sinners in aiding this damnable traffic, while the majority of the rest are also sinners to some considerable extent. If proof be wanting, let the files of the Dublin daily press be examined for the last two or three years; let some of them be examined at the present hour, and the quack and sham advertisements will be discovered by any person with ordinary intelligence. We will not contaminate our pages in giving samples in *extenso* of these prurient and abominable announcements, but we will indicate their character by one or two leading phrases. "The Friend in Need;" "A Medical Work on Marriage;" "The Tonic Elixir;" "The Silent Friend;" "Manhood;" "A Cure for All;" "The Adventures of an Invalid in Search of Health;" "On the Self Cure of Nervous Debility, &c.;" "The Self-Adjusting Curative;" "New Medical Guide;" "Debility, its Cause and Cure;" "Rupture Effectually Cured;" "A Warning Voice;" "A Cure for all, or the Nenropathic System of Medicine;" "Invigorating Pills," and scores of others of a similar stamp. The authors of the above works are known by several aliases, such as Dr. Smith, Dr. Watson, Dr. Hill, Dr. Thomson, Dr. Carpenter, Dr. Thomas, Dr. Marston, Dr. Hammond, &c.

These so-called medical doctors are a gang of miscreants one and all; but the difficulty of hunting them down exists in the fact that they are always changing their names or places

of abode. They are related to each other in many cases by family ties, and work through each other's hands as agents for one another, thereby deceiving the unwary. We have spent some time in tracking these monsters in human shape, and we have been on their trail in London, Glasgow, Edinburgh, and Dublin.

"Like the Indian in the wild wood,
We've dogged their track of slime,
And we'll shake the Gaza pillars yet
Of their godless-mammon shrine."

These beastly fellows advertise extensively in the country papers in England, and in the Irish provincial papers. In some quarters they pay handsomely in advance, but they often repudiate their order after it runs for six months whenever they can obtain publicity without paying in advance.

The writer holds in his possession several newspaper orders given for advertisements by several of the above scoundrels to different journals in Ireland, and copies of several given to newspapers in London and Dublin. "Would it surprise" some of those moral daily newspapers in Dublin if we told the Irish public the amount of money they receive in the year for inserting the prurient advertisements of these medical quacks and their comrades in infamy?

We know one individual in the capital of Ireland who prints sham journals under different names, and perhaps the whole circulation of the batch does not amount to one hundred copies, and yet the moral newspaper proprietor pockets several hundred pounds yearly from these London medical quacks. We know another newspaper proprietor in Dublin who pockets several hundreds also by printing swindling advertisements for different kinds of quacks, medical, sporting, and betting.

We know a third old-established journal off a leading street in Dublin who has pocketed yearly several hundred pounds also, which passes through the hands of newspaper agents and canvassers from Drs. Watson, Hill, Smith, Hammond, James, and the rest of the gang. Without instancing any by name on this occasion we may truthfully say almost the whole of the Dublin papers have assisted in this newspaper infamy, not one crying *peccavi*.

Many years ago in Dublin the founder and editor of a certain well-known newspaper of good literary reputation was prosecuted for libel at the instance of a certain Dr. Larkin. This worthy was in the habit of extensively advertising his medicines, for which he claimed miraculous properties. The newspaper editor in question never allowed quack or objectionable advertisements to appear in his journal, but by some mistake Dr. Larkin's advertisement crept into the first edition of the newspaper, and was printed off before it was detected. In the second edition the editor apologised to his readers for the accidental insertion of the objectionable advertisement, denouncing it as a sham. This gave cause to the reputed libel, but the jury did not compensate the doctor by their verdict. They valued his injured reputation at what it was worth, and the dignity and morality of the Irish press was for once upheld and commended.

It were to be wished that the subsequent career of the same paper was signalled by the same purity, and that its conductors observed a little more discrimination in the selection of their advertisements. Although it does not sin to a great extent, many quack advertisements of a mild type appear from time to time in its columns, and have heretofore appeared.

In some instances the proprietors and managers of newspapers may be mistaken or deceived, but no journal of any long standing can be in ignorance of the character or merits of a certain class of advertisements. We would ask these newspaper proprietors have they any respect for their own homes, their own sons and daughters, or do they think it is possible that their own newspapers can be read with any degree of safety in their own

households, if they contain the class of advertisements we are alluding to?

Curiosity is excited, and youth of both sexes are too prone to gratify it by purchasing in an underhand way those foul and malignant publications which they see so constantly advertised. The first temptation leads to the second, and sin and disease soon puts the giddy, foolhardy, or fashionable youth into the hands of those land pirates who are ever on the look out for their quarry.

In making war upon *bona fide* medical quacks and their supporters in the newspaper press, we by no means wish to eliminate from condemnation other large classes of advertising impostors, who, though they do not dub themselves doctors, live by imposture. Advertisers of "Purifying Pills," "Strengthening Pills," "Cough Lozenges," and a variety of different kinds of pills and lozenges too numerous to mention. Then we have "Hair Restorers," "Hair Dyes," "How to make Whiskers and Moustaches Grow," "Remedies for Baldness," "Depilatory," "Freckles Removed," "To the Nervous and Afflicted."

In some instances it is a clergyman who is the reputed advertiser, who wishes to communicate to suffering humanity the secret of how he was perfectly restored to health. The wolf in sheep's clothing only asks "a stamped envelope," but through fifty newspapers the same old clerical rascal is playing the same dodge. He thereby receives as many stamped envelopes from all his dupes as enables him in another line of business to carry on his other swindling transactions. Our moral daily and provincial journals are the very life-blood of these vermin. They help them to live, and as long as they are thus helped the said vermin will swarm upon the land and plunder society.

To enable our foolish, weak-minded, and fast-living young men in the country to avoid these land-sharks, and also for the purpose of opening the minds of the general public, and to strike a blow at newspaper infamy in our midst, we publish herewith a Medical Quack Directory. For this guide to the quacks of London and elsewhere we are in a great measure indebted to Mr. F. B. Courtenay's valuable pamphlet, "Revelations of Quackery." We supplement Dr. Courtenay's list with a few more additional names:—

A GUIDE TO THE MEDICAL QUACKS.

Bright and Co., 29 George-street, Hanover-square.

Dr. J. T. Barnes, Lonsdale-square, Barnsbury.
Dr. Curtis, *alias* La'Mert, 15 Albemarle-street, Piccadilly.

Dr. Cubit, 6 Crisp-street, Poplar, E.
Dr. Carpenter, London, and Lee, Kent.

De Roos, Walter, 25 Bedford-place, Bloomsbury-square.

Dr. Lalor, 6 Mecklenburgh-square.

Du Brange, Gilbert-street.

Dr. Hammond, 11 Charlotte-street, Bedford-square.

Hamilton, Oxford-street.

Harvey and Co., Weymouth-street, Portland-place.

Hill, W., Berkeley House, South Crescent, Russell-square.

Jones, A., Somerford Grove, Stoke Newington.

James, *alias* Hammond, Percy House, Bedford-square.

Kahn, *alias* Sexton and others.

Kahn's Museum, 3 Tichborne-street, Haymarket.

Marston, Barker 49 Berners-street, Oxford-street (and elsewhere).

Perry and Co., 19 Berners street, Oxford-street.

Russell, 28 Clarence-street, Kentish-town.

Dr. Ricord (Patent Medicines, see advertisement).

Scott (a ladies quack), 15 Henrietta-street, Cavendish-square.

Smith, or Smith and Co., *alias* Hill, 8 Burton Crescent.

Dr. Swayne (Patent Medicine inventor, see advertisements).

Sylvester F., Willesden, Middlesex (see advertisement).

The Secretary of Anatomy, Birmingham (*quere* Dr. Hunter or Marston).

Thomas, G., Markham-square, King's-road, Chelsea.

Thomson, 55 Bartholomew-road, Kentish Town.

Thomson, 21 Harrington-square, Hampstead-road (perhaps the same).

Watson, 1 South Crescent, Bedford-square (and under other *aliases*).

The above are some of the principal miscreants, but a few of the firms mentioned have undergone a transformation within the last three years; others have changed their residences for suburban and provincial districts. There are at least a half-dozen of the above principal wretches who still follow their nefarious practices in their headquarters in London, and who advertise freely in the Dublin and Irish provincial press.* By referring to the list, these scoundrels may be traced in the pages of our daily and weekly press in this city.

If, after this exposure, the press of this city continues to publish the advertisements of the above moral assassins, we will be forced, in vindication of private and public morality, to openly denounce by name, without fear or favour, the principal newspaper receivers of the blood-money of these rascals.

In the name of all that is pure and honourable, how can the minister of either church or religious institution in our midst continue to wink at these scandalous advertisements which are daily outrages on decency and morality. The newspapers who give advertising facility to those vile charlatans, their public advocacy otherwise in the cause of religion or social progress is not worth two-pence. Hundreds upon hundreds of our population are plundered and poisoned year after year by these medical pests of society. Yea, plunder is supplemented by murder, whole families are destroyed, insanity is engendered, and the victims of these vile knaves are driven headlong to destruction and an early grave. The passions and excesses of youth give unfortunately ample scope for the practice, and the alluring baits thrown out by these medical quacks; and when once the young slave entrusts himself to their care, or opens a correspondence with them, his doom is, in all likelihood, sealed.

Young men of respectable families, shun these advertising monsters in human shape if you value your peace of mind, and would not dare to dream of bringing shame and ruin on your homes. Having regard to public decency, we cannot give in these pages the fitting exposure to the system that it needs, for in handling filth and exposing it to the public view, a danger is run that should be prevented, if possible.

In the march of social and sanitary improvement, empiricism must be stamped out, or the public health can never be finally established. If a public prosecutor were appointed, his duty would be not only to prosecute to conviction those red-handed assassins we have pointed out, but also to prosecute the disreputable newspapers who aid and support them by giving publicity to their obscene and swindling pretensions.

GUERRE A L'OUTRANCE.

THE INSTITUTION OF CIVIL ENGINEERS.

FROM the variety of the "Subjects for Papers" announced by the Council of the Institution of Civil Engineers, it will be seen at once what a wide field there is for the young aspirant and student of the profession to make an essay in winning honour or fame. Every facility exists now-a-days for acquiring thorough theoretical, technical, and practical knowledge in one intended profession.

The premiums awarded in the session of 1870-71, were many, including several Telford, Watt, and Manby medals, and premiums in books. Several Miller prizes were also awarded to students of the institution. Civil engineering has made mighty strides during the last quarter of a century. It were to be wished that the beautiful in con-

* We have some resident Dublin quacks practising amongst us, who will come in for notice on an early occasion. The Royal College of Surgeons ought to inquire into the antecedents of these charlatans, whose foreign diplomas are not worth the paper they are written upon.

structive art, in engineering practice, was not so often lost sight of by some of our really able engineers. Harmony and proportion is very desirable, and fitness as well as strength. Civil engineering, we believe, after all, is only in its infancy; and as the young giant grows in power, he will hold himself more amenable, we believe, to the other essentials requisite to proportionate as well as complex and skilful execution. Mere ornament may be dispensed with, if it be not the natural outgrowth of the design itself. Where it is the natural result of the treatment, it is in harmony with the work, and instead of encumbering it, it will be found enhancing its value from every point of view. Why should not Engineering and Architecture march hand in hand? They are inseparable in some things, and in others they cannot be divorced, save to the lasting injury of both. There is a harmony awaiting in the present day between both professions, which would be very desirable to see effected for the good of society, and for the important interests of Science and Art.

BOOKS RECEIVED.

Elsie Lee, the White-Thorn Tree, and other Poems. By Malachy Ryan. Dublin: Peter Roe, Mabbot-street.

THIS little volume of poems, although a first attempt, is a most creditable one. There are thirteen pieces in the book, exclusive of "Elsie Lee," which is the most ambitious, as it is also the best treated, subject in the volume. The life drama of Elsie Lee and her home, her early youth, hopes, her mother's counsel and love, her father's stern nature but goodness withal, and lastly, poor Elsie Lee's love and marriage, and the terrible *denouement* on the bridal morn—all is told well and with a simple and natural power of expression, clothed in language seldom sinking into sameness, but rather replete with rich imagery, pathos, and feeling. The scene of the story of "Elsie Lee" is laid in Glenealy, which the poet says:—

"Glenealy is a village bowered in hills,
That eastward ope a space to let the sea
Breathe in its freshness to the pure-air'd vale,
Whisper its mysteries to the villagers.
It is a lovely, lonely spot as e'er
A world-weary heart chose for its rest,
Or wistful poet sought to dream to fame—
Rest that comes not this side the clayey home,
Fame that comes never, for 'tis but a word."

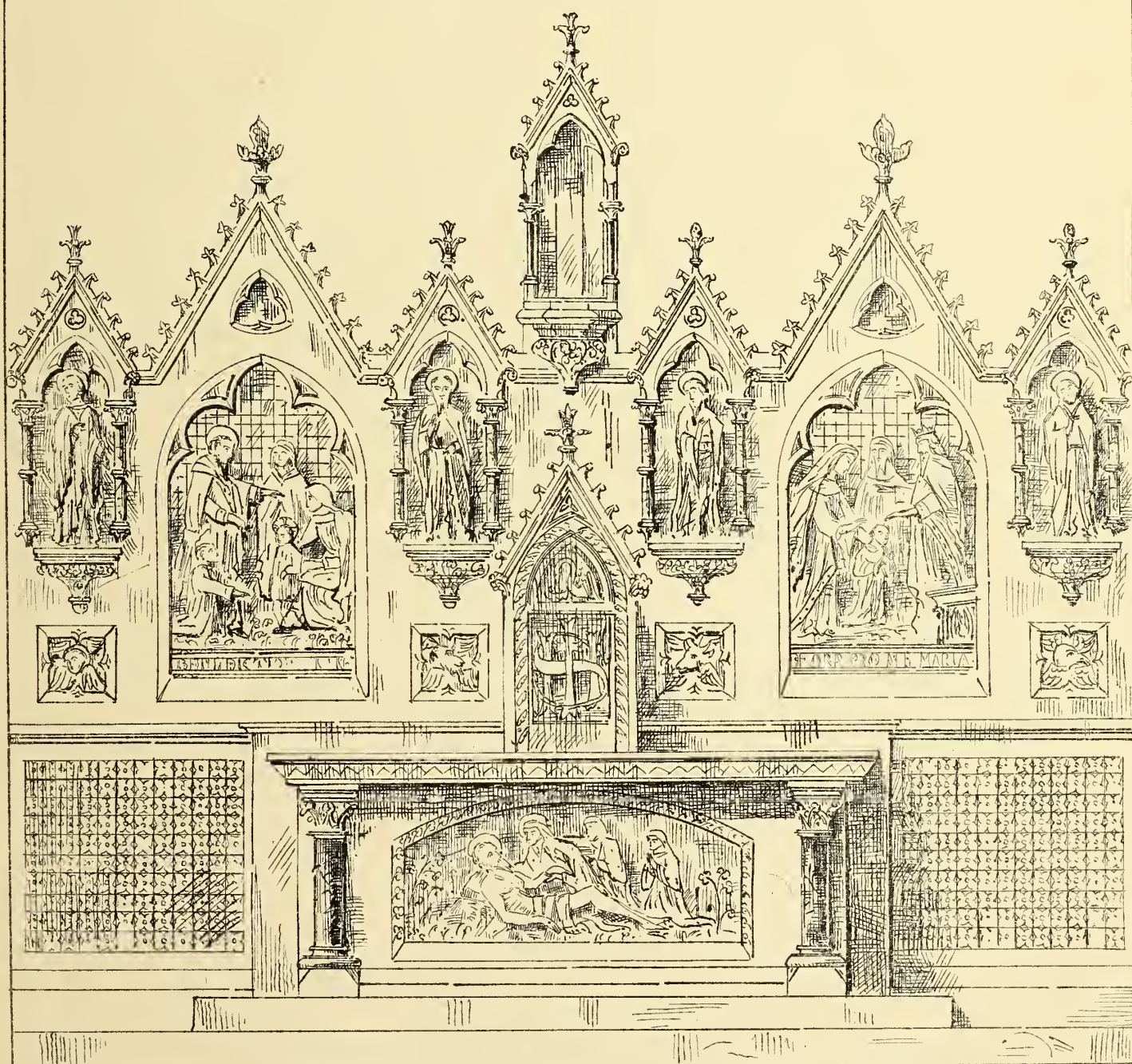
The poet is very happy in his description of the good heroine of his little poem. The following passage will show with what success. Young as Mr. Ryan is, his descriptive powers are not inferior to many who have already made their poetical reputation:—

"O, she was fair! fair as the pendant bud,
When grey-eyed Morning from her silver cup
Pours wooing dew-drops on its pouting lips
To court it to a flow'r; gentle as Eve,
The August Eve that steals through rustling corn
To spread her mantle o'er the western sea,
And fret herself to darkness. She was fair,
But far beyond the sweetness of her face,
(Home of her soul, for there it ever shone.)
Was her enhancing modesty of mien,
That, like a charm, wrought on every heart.
Did any weep, she dried the mourner's tears;
Did any joy, she ran to learn the news,
That she, too, might rejoice; did any want
The daily meal, the want was quick supplied
By Elsie Lee, who gave as if she asked
O, she was the angel of the place!—a light
That beamed on sorrow till it flowered to joy,
That softened anger to a laugh of love."

"The children left off romping, rushed to her;
And there was benediction in her smile
As playfully she tossed their tresses back
To kiss their upturned faces,—for they gazed
Upturned to her as roses to the light."

The death of Elsie Lee's mother is thus described. We consider it a very beautiful description, and, as an isolated one, it is quite worthy to rank beside many passages in Teunyson:—

"A little gust of music-wind, as soft
As 'twere the redbreast's cheeping gave it birth,
Odorous with essence of wild flowers, passed
In through the porch, and quaffed the tulip's cup,—
In through the room, and kissed the sufferers cheek.
A little star, faint pulsing in the east,
Looked thro' the window with an eye of love;
Its cold beam danced upon the counterpane,
Flickered awhile upon the thin, clasped hands,
Glowed on the brow and meek upgazing eyes,



ALTAR AND REREDOS OF KILLARNEY

G. HANSON ARCHT

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

Kiss'd the pale lips, and pass'd—God's courier!—
The soul of Mary Lee pass'd on the beam
To Heaven!
A vacant chair beside the dinner board!
A broken circle round the bogwood fire!
A tenant more within the choked churchyard!"

The bridal day of Elsie Lee and Angus Slone, the hidden mystery, cause, and tragic end of the lovers—he accursed and she lamented:—

"Her coffin lid a bed of virgin flowers,
And laid to rest upon her mother's breast."

The village maids decking her early grave with lilies, and

"Sobbing—'Farewell! farewell, sweet Elsie Lee!'"

All is well handled, and, though the story is a sad one, in conception and execution it is very well worked out. It may be objected that there is a little of the unreal in the catastrophe or in the causes that produce it; but at the same time a licence must be allowed, particularly when the poet has chosen to place the scene of his story among a people with whom strong religious feelings exist, and a fear of the supernatural is rather the growth of virtue than the offspring of vice.

"Elsie Lee" possesses many beauties, and, on the whole, it is a decidedly well-written little poem, giving proof that the author can yet do better.

The Minor Poems of the volume are mostly short and metrical, "The White-Thorn Tree" and "Marian Kane" being the principal ones of the minor poems. That entitled "A Grave" tells, in forcible language, the story of a coquette and her jilted lover. Both are supposed to be in the grave, and the poet holds communion in the churchyard—Love with Death.

We feel we must quote those lines in which the coquette is first beautifully painted, and finally scourged for her heartlessness:—

"She was a maid with lovely eyes,
Twin sisters pilfered from the skies;
Yellow hair to her feet did fall,
Wrapt her round, a golden shawl:
A spirit of love, an angel bright
She looked on earth—a beam of light!
From her form was fashioned Beauty's mould,
But the heart within was of sin a sink,
A loathsome toad in a cup of gold,
A poison drop in a honey drink!
Her every smile took captive a heart,
And then she dungeoned it in despair:
O! Coquetry learned from her its part,
The simpering smile and abandon air."

Here are the grave and virtues of the poor victimised object of the coquette's simpering love. Let coquettes read it and shudder, for the laugh of death will ring o'er their graves, and the scorn of mankind in their ears while living:—

"Edwin, you sleep in a grave hard by,
Who trampled your big heart under her feet,
Who fluted a laugh to your love-lorn sigh?—
The dainty lady the lilies beneath.
She broke your heart—'twas well! 'twas well!
You wedded a bride in the heavenly home,
While she is fettered in deepest Hell,
Where never a sunbeam of hope can come.
She won another love by her art:—
As she knelt 'fore the altar in bridal dress
I dight my arrow into her heart,
Hissed in her ear—'Ho! murderess!
'To Death is due first kiss and caress!'
'Ha! ha!—he! he!'
And Death rattled his bones with glee."

Unhappy coquettes—beware!

The little volume is dedicated (by permission) to the Lord Chancellor, Baron O'Hagan, who will have no reason to feel ashamed of the dedication. Of the typography, paper, and general "get up" of the little volume we will say nothing—content to let it speak for itself.

Paper on Railway Gauges. By R. F. Fairlie. Read before the British Association at Edinburgh, Session 1871. London: Charles Whiting, Duke-street, Lincoln's-inn Fields.

THIS pamphlet of Mr. Fairlie, whose name is well known in connection with railway enterprise, is a practical exposition of the advantages and saving to be effected by the adoption of the narrow-gauge system.

The adoption of the narrow-gauge system in India and its entire success has begun to create a revolution in railway management. In America the narrow-gauge is being adopted with wonderful expedition and equally wonderful success.

The great transcontinental railway projected across the American continent from the Atlantic to the Pacific in all likelihood will be on the narrow-gauge system. A waste of money, destruction of plant, and a very small or no dividend at all, is the not unusual result of the greater number of our railway branches, which, if constructed on the narrow-gauge system, would yield handsome returns. Ireland is peculiarly suited for the extension of lines, wherever they are required, on this economical system of working. Unlike the English or Scotch lines, the railway lines of this country are not subject to a heavy manufacturing or mineral traffic. We are certain if many of the railway lines, which are now almost in a state of insolvency, were worked on Mr. Fairlie's plan, and with the locomotion he instances and has introduced into use, their condition would not be as it is.

Money has been flung away wastefully in their construction, and in the construction of the locomotives, and other railway plant and stock belonging.

The Festiniog and other narrow-gauge railways in India, particulars concerning which may be found in Mr. Fairlie's pamphlet, proves in their construction and working that the narrow-gauge is truly the railway-gauge of the future. For long lines in a new country, or at home, in thinly-populated districts devoid of industrial resources, the system here advocated is the proper one.

We trust that shareholders in future, abroad or at home, will keep their eyes open, and will think twice before once investing their money to be lavishly expended in constructing railway lines that will never pay during an ordinary lifetime. Mr. Fairlie, as a pioneer of railway reform, is entitled to something more than the thanks of the community, let it be expressed through what channel it may.

THE PEOPLE WANT TO KNOW.

Why are our streets, from year to year,
As dirty as can be?
Why is the Liffey never clear,
But filthy, as we see?
Why do our city council wink,
And drain our pockets so,
And yet will not put down the stink—
The people want to know?

Why does our New Main Drainage Scheme
Drag its slow length along?
Does Bazalgette ever dream,
Or Neville sing a song?
Who jobs the work? who votes the cash?
Who craves a statue—oh?
Now who is he so very rash—
The people want to know?

Why are the police absent when
They're wanted in our need?
And when not wanted, why are ten
Found running at full speed?
Where do they hide when not about?
They never drink—no, no!
How do they get so very stout—
The people want to know?

Why are those silken dames at night
Allowed to walk our flags?
Why are poor vendors put to flight
Who hawk and sell in rags?
Is poverty the greatest crime
On this cold earth below?
Will want receive no breathing time—
The people want to know?

Why are our public squares still closed
Against the working class?
Why are improvements still opposed
And claims denied a pass?
If lock and key give endless rights,
Perhaps a well-aimed blow
May tell the tale for days and nights
The public wished to know.

CIVIS

PLASTER WORK AS AN ART.

THE PROVINCIAL BANK OF IRELAND, COLLEGE-STREET.

THOUGH we gladly give insertion to the annexed letter, we feel called upon to make a few remarks below, which, we trust, will be received on all sides with the same spirit that actuated them.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Honour to whom honour is due. Your last number erroneously states that the plaster work at the Provincial Bank was the work of Messrs. Hogan and Son. The plaster ceiling, &c., of the great cash office is somewhat remarkable in

boldness of design, and variety and originality of execution. It may be safely asserted that, since the period when some Italian artists made Dublin famous for such remarkable art-work in plaster as the ceiling of the Hall at the Royal Hospital, of the Chapel of the Rotundo Hospital, and hundreds of other private and public buildings, no such successful art plaster-work as this of the Provincial Bank has been executed in Dublin. From it dates an extraordinary revival and improvement in the plaster work as an art. In former pages of your journal will be found a paper, by Mr. Thomas Drew (who took an active part in this work), read before the Institute of Architects, giving useful and interesting particulars of the way in which the work was carried out. It is but right to place on record that a Mr. Thomas Saunders, directly employed by Mr. Nolan, the contractor, deserves the greater portion of the credit attaching to this fine work. Mr. Saunders possessed zeal in his art, a painstaking desire to subordinate his art-work to the architectural leading features, and great skill in the manipulative working and combination of materials. Subsequent to the execution of the work at the Provincial Bank, the ceiling of the Hibernian (late Union) Bank, College-green, was executed by Messrs. Hogan and Sons in a highly creditable manner, and is also an original and striking work. This latter, perhaps, has been confounded with the former work. It is very desirable that honour should be given to the art workman himself, who, as in the case of Mr. Saunders, has done much to elevate the character and regain the lost prestige of his handicraft. It may at least indicate to those aspiring to be plaster modellers that there are not wanting some who watch with interest for progress in their art. In the case of the Union Bank, Mr. Pobjoy, an employé of Messrs. Hogan, well known to many architects in Dublin, deserves credit for his share in the artistic part of the work.

F., Architect.

Dublin, September 16th.

The letter of our correspondent will raise issues which, we fear, will need to be debated and examined at length, in the interest of art and architecture. How far the plaster-work of even our best public buildings in the present day deserves the name of art in its manipulation, in contradistinction to the term handicraft, it would be desirable to know. The beautiful specimens of scagliola work which were executed in Dublin from the middle to the close of the eighteenth century evidenced a highly cultivated and artistic taste. It also showed that the art workman possessed a technical knowledge. Native-born, as well as Italian workmen, contributed their share to this performance. In the plaster-work of that day, flowers, stalks, vases, urns, figures, and every sort of foliage for enrichment were formed by the hands and fingers and modelling tools of the artist in plaster. This was really *art-work* to some extent. This was not *casting* by the yard, *running* by the perch, and *ficing* by the mile, which is generally the description of plaster-work which distinguishes the modern trade. Whenever any effort is made to lift up the plaster-work above the ordinary ruck of monotonous execution, we are glad to hail the effort, come from whatever quarter it may. Whoever earns the prize is entitled to the honour, and it will not be easy, in these days, to rob him of the honour, although his exact share may be a matter of dispute.

Of plaster-work *per se*, or in the light of an art, and of its history and surroundings, we will have something further to say on another occasion.

ALTAR AND REREDOS, KILLARNEY.

THE altar and reredos, of which we give a lithograph with our present number, have been erected from the designs of Mr. Hansom, London, for the Rev. P. Gaynor, Monastery, Killarney. The columns supporting the altar-table are of Galway green marble, with alabaster caps. The groups in reredos are: Christ blessing little children, and the presentation in the Temple. The four evangelists are placed in niches, as shewn. The panel in front of altar contains the Dead Christ, &c. The entire work has been completed in the most satisfactory manner by Mr. Joseph O'Reilly, Anglesea-street, Cork.

"HOME RULE IN ART."

UNDER the above heading a correspondent, signing himself "Hibernicus," in the *Daily Express*, makes some truthful observations quite in place at the present moment in this city. Now, while we have no objection to see talented strangers or foreigners competing with our native artists and architects, and worthily carrying off the prize by superior ability, we have, on the other hand, a decided objection to seeing a morbid and unhealthy rage evidenced by our nobility, gentry, and public boards, in the matter of bestowing their patronage, thick and thin, outside our shores. If any difficulty existed in procuring the execution of works of art, either in painting, sculpture, or architecture in Ireland, there would be a reason to urge in favour of what is nothing less than a fallacy or a delusion. Works of statuary and high art, and resident artists capable of undertaking such, can be found in this city and in other towns in Ireland. We have shown this on a former occasion, and if there be any person in ignorance still of the facts, we are quite ready to convince them of the truth of our statement. "Hibernicus" says truthfully that—

"While a section of the Irish public is occupied in the agitation for Home Rule, allow me to draw attention to one of the most melancholy aspects in the existing state of Ireland—namely, the general disposition amongst those who have the distribution of artistic patronage to overlook everything and everybody that may belong to their own country, and rush blindly to England, as though only there were ability and taste in the arts to be found. In former times this was not so. The public buildings and other monuments of Dublin, and the mansions of the nobility and gentry throughout Ireland were the work of men, who, if not always natives, were at any rate residents in Ireland; nor was there ever any lack of local talent and skill to carry them out worthily, so as in those times to obtain for Dublin a high reputation for its architectural grandeur, in which it never fell short in comparison with the other cities of the Empire. Now-a-days, however, all is changed. Scarcely an architect, sculptor, or painter, if any way ambitious, can live in Dublin, for the simple reason that every commission of importance, from a cathedral to a theatre, and from a nobleman's mansion to a piece of decorative sculpture, is, as a matter of course, handed over to some London man, who, just because he hails from that great metropolis, is supposed to be first-rate; while Irishmen, often of far greater ability, are passed over merely because they happen to be Irish, or because their attachment to their own country or other circumstances have kept them at home. In support of this we have only to glance at some of the important works executed or in progress during the last few years. Some few of these have been put up to public competition, and then rarely indeed has Irish talent been found wanting, and seldom have English architects been able to gain any advantage over them. On the contrary, Irish architects have on several occasions won important commissions by competition in England and the colonies by the sheer force of their talents against much adverse influence. The Oxford Museum, the Chester Town Hall, and the new Houses of Parliament at Sydney, were all won by Irish architects; and the design of one of the same gentlemen has just been pronounced by the judges as by far the most masterly in the recent important competition for the new Town Hall at Birmingham. In fact, were the designs for all important works to be selected in this way, and competent judges employed, there would be no cause of complaint. Irish architects would be able not only to hold the business of their own country, but also to make successful inroads into English and colonial business as well. But by far the largest amount of business is given away without discussion or competition, and here it is that the miserable prejudice against their own countrymen and absurd leaning towards strangers is most manifest."

When will our other daily journals, editorially as well as in epistolary style, give their advocacy to these paramount questions so much affecting our country's welfare? When will art receive a fitting and efficient advocacy by Irish journalism? For many weary years we have been working unaided and alone; but knowing that we were on the right road, we have never desisted from helping every effort of native artistic genius in our midst. We have the satisfaction of

feeling at last that we have not wholly worked in vain. To let native skill be ignored or neglected, and native art and its devotees perish off the face of the land, is a blind and a criminal folly. If journalism exists for anything, it should exist to foster and create public opinion, not alone in politics, but public and national opinion in art and literature, and make it "racy of the soil." To utilize our waste power and talent, to develop our industrial resources, and make this island self-supporting, as far as it is possible, while internationally exchanging her products, not with a loss, but with a gain to the commercial interests of her population. Fair competition by all means let there be, courtesy to the stranger, but above all let us show a self-reliant spirit in our own capacity, and a belief that our inferiority in matters of art has no tangible existence. If we act thus, the future of art, painting, sculpture, and architecture in Ireland, will be a bright and historic one.

THE LATE MR. AUGUSTUS APPLGATH.*

A REMARKABLE man has passed away from us, and some account of his labours in improving the art of printing may prove interesting to our readers. Augustus Applegath, the son of Augustus Joseph Applegath, Captain of the Hon. East India Company's ship *Europa*, was born in the parish of St. Dunstan, Stepney, on the 17th June, 1788; he departed this life at the ripe age of 82 years, and his labours extended over half a century, during which time he took out eighteen patents in his own name for improvements in letter-press and silk printing, commencing his career as a printer in Nelson-square, Blackfriars-road. The Stanhope press was the instrument in general use for printing at that time; but experiments were being made by Koenig, under the patronage of Mr. Thomas Bensley, to carry into practice the suggestions of Nicholson, who, in 1790, in a patent, indicated an entirely new method of increasing the production, by employing a cylinder for the type to pass under, instead of the impressions being produced by two flat surfaces. He also described his method of fixing type round a cylinder, but did not succeed, and it was left to the subject of this notice to solve the problem. Mr. Edward Cooper, Mr. Applegath's brother-in-law and partner, in 1816, took out a patent for printing with curved stereotype plates, and machines constructed on this principle were in successful operation for years. His next patent, in 1818, was for distributing the ink upon a flat distributing table, by means of rollers covered with leather, felt, or composition (treacle and glue), the distributing rollers having an end-motion. In this patent was also claimed the important improvement of conveying the sheet of paper from one printing cylinder to the other by means of "conveying drums," to which it is held by two sets of endless strings or tapes. This form of machine, with subsequent improvements, employing larger impression cylinders, and only two instead of four conveying drums, was, and is now, in universal use in the trade, and is known as "Applegath and Cowper's Royals." These are perfecting machines—that is, printing both sides of the sheet before it leaves the machine; and their rate of production is from 800 to 1,000 per hour.

In 1818 Messrs. Applegath & Cowper constructed machines for the Bank of England, to print in several colours, in perfect register, designs for the prevention of forgery, and some millions of £1 notes were printed by them in the Bank, but were never issued, in consequence of the resumption of cash payment. Mr. Applegath, having separated from his partner, Mr. Cowper, erected a printing-office in Duke-street, Stamford-street (the nucleus of the extensive office at present in the occupation of Messrs. Clowes), and he turned his attention to expediting the produce of machines for newspaper printing. He met with a liberal patron in Mr. Thwaites,

the proprietor of the *Morning Herald*, and in 1822 made two machines for him, printing at the rate of 1,200 impressions per hour; and subsequently two more, printing 2,000 and 2,400 per hour. The circulation of the *Herald* rose from 2,800 to 6,500 copies in 1825. In 1826, Mr. Applegath was called by the late Mr. Walter to improve the machines erected by Koenig in the *Times* office, which was effected in the same way as Mr. Applegath and Mr. Cowper had altered Koenig's machine in the possession of Mr. Thomas Bensley. Mr. Walter then contracted for the erection of a machine to print at double the rate of Koenig's,—3,600 instead of 1,800 per hour. This machine printed at first 4,200, and subsequently 5,000 per hour; but for this Mr. Applegath received a very inadequate remuneration, and none whatever for any of the identical same type of machine made since, of which more than twenty were in use in London alone, and known to the trade as the "four-feeders." This machine enabled the *Times* to increase its circulation, which in 1846 reached 28,000 daily: it was difficult to print the number required in time; and, in August of that year, Mr. Applegath offered to construct a vertical machine to print the *Times* at the rate of from 6,000 to 9,000 per hour; in December the contract was signed, and the patent taken out, and in October, 1848, the machine commenced its daily operation, printing at the rate of 8,000 per hour (subsequently increased to 12,000), and a contract for a second machine was immediately entered into, and a third one (with nine cylinders) was made, printing 15,000 per hour.

Two vertical machines with four impression cylinders, were made for the late Mr. Ingram, for the *Illustrated London News*, and one of them was erected in the Great Exhibition building in Hyde Park, in 1851. This machine was described in "The Crystal Palace and its Contents" as "one of the greatest lions in the Great Exhibition, and which, perhaps, attracted daily more curious admirers than the Koh-i-Noor itself."

The means whereby the produce of these machines so far outstripped the "four-feeders" was the imposing of the type in circular beds fixed on a large central cylinder, with eight impression-cylinders round it, and a corresponding number of feeding and taking-off apparatus connected with them. The cylinders, instead of being placed in a horizontal position, were placed vertically, to insure greater safety to the type, and an incidental advantage of rendering the parts more easy to get at. This position, of course, necessitated a change in the sheet from a horizontal position, as laid on the feed boards, to a vertical one in the act of printing, involving an entirely new method of treatment; but it was successfully surmounted, and for twenty years these machines were in daily use in the *Times* office.

One advantage attached to the vertical system of printing was that, without rendering the parts of the machine inaccessible, the number of impressing-cylinders could be greatly increased. In the specification of the patent of 1846 a method is shown of surrounding the large type-cylinder with thirteen, instead of eight or nine, impressing-cylinders and feeders, and by this means 21,500 sheets per hour could be printed, a rate of production, we believe, never yet attained by any other form of machine; also is shown in the specification a plan of printing, from rolls of paper, with thirteen cylinders, but on one side only; and whether by any contrivance the other side could be afterwards printed in "register" is still a problem.

The improvements in the art of stereotype casting, by the employment of papier-mâché moulds, from which several plates can be cast, indicated that production should be increased by the multiplication of machines, rather than their complication by adding more cylinders and feeders, and the papier-mâché moulds being flexible, circular as well as flat plates could be cast from them, and of a small as well as of a large curve. This in-

* From the *Builder*.

duced Mr. Applegath to turn his attention more particularly to "roll printing," which he had never lost sight of; and in 1859 he took out a patent for that object. This is the last patent for letterpress printing that he took out.

During the time Mr. Applegath was at Crayford he took out four patents for improvements in silk and calico printing, and carried these inventions into successful operation.

Mr. Applegath, like many other inventors, although the pioneer of the fortunes of others, did not reap the reward that might have been expected from his inventive mind. In 1863, writing to the *Stationer*, Mr. Applegath used the following words:—"Before closing this letter, I should be very ungrateful if I omitted to state that though I have not been permitted to do all I wished, yet, through the great liberality of Mr. Walter, a *periodic honorarium* is awarded for my humble attempts to improve the *impressing mechanism* at the *Times*."

Finally, then, the labours of Mr. Applegath may be thus briefly summed up:—In conjunction with his brother-in-law, Mr. Cowper, he produced the machine by which the great bulk of books have been, and are, printed; and to the newspaper reader, who could formerly have obtained a paper printed at the rate of 800 per hour, he offered one printed at the rate of 15,000 per hour, and had it been necessary, could have greatly increased that rate of production.

THE MONT CENIS TUNNEL.

ELSEWHERE we have made some remarks upon the completion of this stupendous piece of modern engineering, by which the Alps have been perforated, and France and Italy drawn closer into the bonds of international interests. The following particulars, furnished by the special correspondent of the *London Standard*, will form an interesting supplement to what we have already written:—

"In the calculations made when the perforation of the Alps through the Col de Tréfus was first seriously contemplated, the length of the tunnel was set down at 12,220 metres. Your readers will remember that a metre is to a yard as 99 is to 90, so that they have only to add a tenth to any computation I may give in metres, and then multiply by three, to arrive at the result stated in feet. The mouth of the tunnel at Bardonnecchia was calculated to be 1335.38 metres above the level of the sea; at Fourneaux, 1202.82; and the culminating point between the two, 1338.45. The maximum height of mountain strata overhead was stated at 1610 metres, or nearly an English mile. Experience has verified these calculations, the facts since ascertained with rigid accuracy differing but imperceptibly from the anticipation. In one sense, however, and that, perhaps, the more correct one, the tunnel is 13,446.32 metres in length, as I will explain in a few words. In order that the workmen at both ends should meet in the middle, it was necessary that the tunnel should be rectilinear; but this straight line does not commence immediately at either end. In order to leave the two extremities open for ventilation and the various exigencies of the service, two curved galleries were made, one at the southern end, 757.07 metres long; one at the northern end, 453.70 metres. Thus, when one looks at the ornamental archways of which I have spoken in my former letters, one is not looking straight into the rectilinear tunnel. That view is to be obtained at some little distance away. The geological strata that had to be pierced proceeding from Modane to Bardonnecchia, may be stated in the following order: a sandy mica and schist mixed up together, quartzite, chalky dolomite, and finally calcareous crystalline schist, alternating with argillaceous schist. Of the means of piercing these various strata I have already given you the outline. It may be well to ask how the body of water required to compress the air, which was ultimately the motive power of the perforating machines, was obtained at Bardonnecchia from the torrent known as the Melezet, and at Modane from the Arc. I fear I should be considered to be trespassing upon the tasks more suited to scientific journals than to a daily newspaper were I to enter into a detailed description of the methods by which the water was made to keep up a constant supply of compressed air, the compressed air made to move

the piercing, scooping, and perforating tools, and then last, again, to do their important work.

"But it ought not to pass unmentioned that when in the winter months the water at the Fourneaux end was insufficient for the purpose, the ever active mind of the lamented Sommeiller came to the rescue, and saved almost incalculable expenditure and delay by the invention of a tubular hydro-pneumatic compressor. It will interest many to see the extraordinary rate at which the yearly progress made in the tunnel increased from 1857 to 1870, and I therefore transcribe the following official figures:—

	Metres.		Metres.
1857	38.08	1864	1087.85
1858	459.52	1865	1223.70
1859	369.10	1866	1024.99
1860	243.20	1867	1512.11
1861	198.00	1868	1320.15
1862	243.00	1869	1431.45
1863	802.00	1870	1635.30

Here we have almost a steady increase of progress, varied only by the stubbornness of the matter to be got rid of. The expense, as may be imagined, was considerable; yet, looking to the vastness and novelty of the undertaking, it seems less than might have been expected. By the bill dated August 15, 1857, and passed by the sub-Alpine Parliament, the Government was to contribute 41,400,000 lire, and the Victor Emmanuel Railway 20,000,000. After the cession of Savoy and Nice, France had to undertake the payment of 19,000,000 francs, on condition that the work was completed in twenty-five years; but a further contribution was to be made by the French exchequer of 500,000 francs for every year less than twenty-five that the work should occupy, and of 600,000 for every year less than fifteen. By the energy and expedition with which the task has been completed, the Italian treasury has been considerably lightened of its financial obligations in the matter. The whole expense of the undertaking is calculated at 75,000,000 lire, or £3,000,000 sterling—truly, to use historical language, a flea-bite when we consider either the stupendous difficulties to be overcome, or the dazzling results to be reasonably anticipated. Of course it is of the nature of an enterprise so signally successfully as this one that it will find many imitators; and the Col de Tréfus will not long be the only Alpine mountain which can boast a ray of light shot through it by that indomitable little gnome, man. The St. Gothard, the Brenner, the Simplon, all will in turn demand to be pierced through the heart, and then only a portion of the traffic that has to come to Italy from the rest of Europe, and to be transported from Italy in return, will for any length of time choose this route. But it will live and thrive by its own natural traffic."

Truly there is reason to rejoice at the conquests of science; and we need not despair of yet seeing the horrors of war removed from the face of the earth by the application of the same knowledge that renders these sights so hideous. When the science of war arrives at that point where it will spell absolute destruction to both combatants—and it is fastly approaching to that,—science will have achieved its greatest triumph in the history of civilization. It is only then that common sense may be expected to dawn upon the minds of men, convincing them that the happiness of the human family is depending upon the arts and sciences that build up society and its institutions, and not their misapplication to unhallowed ends.

THE COST OF THE DUBLIN MAIN DRAINAGE BILL.

At a special meeting of the Corporation, held in the City Hall, on the 20th ult., was submitted—"A report from the Main Drainage Committee, submitting a statement of the expenditure, liabilities incurred, and income by the Main Drainage Committee in passing of the Dublin Main Drainage and Purification of the Liffey Act, 1871, and requesting the sanction of the Council for the application to the Government for the first instalment of the loan." The report, which we annex, deserves some scrutiny, and though satisfactory to the committee, cannot be highly satisfactory to the ratepayers. It runs thus:—

"Your committee beg leave to report that since the appointment of the Main Drainage Committee, under the provisions of the 'Sanitary Act of 1866,' drafts have been drawn to the amount of £2,697 2s. 8d. for salaries and necessary expenditure of the Committee in preparing and promoting the Bill for the Main Drainage of Dublin, and the Purification of the river Liffey. A detailed statement of this amount is here appended for the information of

the council. Your committee have, since their appointment on the 8th of August, 1871, obtained a statement of all their liabilities incurred in the carriage of the Dublin Main Drainage Bill, and which are as follow:—Mr. R. M. Muggidge, per agents, costs, £1,010 3s. 9d.; Messrs. Smith and Barry, solicitors, £728 1s.; fees to counsel, £941 8s. 6d.; newspaper accounts for publishing notice of the Bill, £287 6s. 6d.; law agents, disbursements for witnesses, £394 17s. 10d.; expense of inquiries, witnesses, £768 19s. A sum of £950 has been paid to the law and parliamentary agents on account of fees to the Houses of Parliament, and other expenses. Your committee, having carefully considered the foregoing liabilities, passed a resolution in reference to the above sum of £1,010 3s. 9d., to the effect:—"That Mr. Muggidge be offered a sum of £500, in addition to the £480 already paid, in full discharge for Parliamentary costs, &c., as furnished." With respect to the costs of Messrs. Smyth and Barry, your law agents, amounting to £728 1s., the committee unanimously passed the following resolution, viz.:—"Resolved—That from our sense of the zeal and efficiency displayed by Messrs. Smyth and Barry, as our solicitors for the carriage of the Bill, they be offered £700 in full for their costs." The remaining items are the necessary disbursements for expenses of witnesses, fees to counsel, &c., which, upon examination, your committee consider fair and reasonable. Your committee are of opinion that, considering the magnitude of the measure and the numerous and important interests involved, the costs connected therewith are moderate, and that the officers of the several departments of the Town Council engaged in the preparation and the details of carriage of the Bill fulfilled their onerous duties satisfactorily, and with a due regard to economy. Your committee feel much satisfaction in reporting that, through the influence of the Right Hon. the Lord Mayor, arrangements have been made with the Hibernian Bank for the advance, on advantageous terms, of a sum sufficient to pay off their liabilities pending the advance of the first instalment of the loan by Her Majesty's Government, and your committee anticipate a considerable saving from the adoption of the principle of prompt payment of their engagements. Your committee beg to request the sanction by the Council of the foregoing resolution, in order that the committee may be enabled to discharge the various amounts without delay. Your committee have to report that Mr. Bazalgette has, after a careful personal examination of the engineering and other details, advised them that it will be necessary to obtain the sum of £75,000 as a first instalment of the loan from Government, to enable your committee to carry out the necessary works and arrangements up to December, 1872. Your committee now request authority to apply to the Government for that amount, and power to enable them to complete such loan. All which we certify as our report."

This report will give rise to many questions which may and will be asked, but which will never receive any satisfactory answer. On another occasion we will have a talk over it, but in the meantime we would ask—Why was the clause which passed in the Commons, limiting the expenditure to 8d. in the pound, expunged from the bill in its passage through the House of Lords? It was a most valuable clause in the interest of the over-taxed citizens of Dublin; but, as the bill now stands, unlimited power is given to the Corporation to tax the citizens in carrying out those works, or for other supplementary works which may be tacked on to them.

The answer that has been vouchsafed to this query already is a very lame and unbusiness-like one. We are told that the Chancellor of the Exchequer "would have buttoned up his pocket," and replied that the security given by the Corporation was not sufficient unless the alteration took place. Notwithstanding, we are informed that the taxation will never exceed 8d. in the pound for carrying out the works. What moonshine surely. Why, in the name of common sense, if it was believed or calculated that it would not reach 8d. in the pound—and that 8d. was first agreed upon—why expunge the clause that protected the pocket of the ratepayer? The answer given is unworthy a council of sane or honest men. We cannot, however, at present enter further into the matter, but we will give it our close attention at an opportune moment.

CORRESPONDENCE.

GEORGE GODWIN, Esq., F.R.S.

TO THE EDITOR OF THE IRISH BUILDER.

SIR.—Being connected with the architectural profession since my earliest years, and having assisted to some extent, during a residence in London, in sanitary reform, I can bear testimony to the incessant labours of Mr. George Godwin, the editor of the *Builder*; it also gives me great pleasure to find that the memory of his services, or their effect, is not forgotten.

Your correspondents, H. C. and C. G., fairly and honestly state the even tenor of his life, and their evidence, which shows their acquaintance with their subject, ably supplement your own thoroughly out-spoken and disinterested observations. There is scarcely a district of any note in the three kingdoms through which I have not passed during the last ten years. I am as well acquainted with the industrial and manufacturing towns of England and Scotland as I am with the neighbourhood of my birth-place. I have an intimate knowledge of the ways and workings of local boards and parish vestries, and the history of modern sanitary improvements, during these last twenty-five years, is a topic which has enlisted my warmest sympathies, and, whenever I could spare time, has received my best advocacy and support. The advocate could not, however, for many a long year, find a suitable channel outside one professional journal to give utterance to his thoughts, and not only was cold water thrown on his efforts, but stubborn opposition was given to each and every attempt he or others made through the daily press in the interests of the Public Health. I have lived to see this opposition at an end, and those who opposed it become some of the strongest advocates of the cause they once decried. Who, may I ask, brought about this wonderful change in public opinion and social and sanitary reform? It was George Godwin.

Long before any of the daily or weekly journals gave the least attention to the subject, the mornings and evenings in winter and summer, and even on the Sabbath (the better the day the better the deed), were spent by Mr. Godwin in exploring the plague-infested and misery-crammed tenements in some of the vilest and filthiest dens of modern London—in St. Giles, Westminster, Drury-lane, St. Pancras, Bethnal Green, Spital-fields, and several other quarters, from east to west; the courts and lanes, and the homes of the working poor were visited, their deplorable state described with a ready and graphic pen, and their misery illustrated with a not less ready and facile pencil. Many risks were run amid nests of fever and cholera, and even personal violence was no unlikely greeting to be found waiting the public philanthropist during his entry or exit from the dismal haunts of dirt, disease, and criminality—for crime will be more or less found in connection with the former. Having myself traversed several of the low quarters above described, at a time when improvement had visibly set in, I can form some estimate of their state before any public attention had been drawn to them.

Whoever desires to know for himself what these quarters were, let him consult Mr. Godwin's little volumes, published during the last fifteen years, entitled "London Shadows," "Towu Swamps and Social Bridges," "Another Blow for Life," &c. In these works there are efforts of pen and pencil that ought to awaken the very dead from their graves, and sting the consciences of the callous living with remorse. The labours of George Godwin were not, however, confined to exposing abuses or delineating the frightful condition of the poor of London, or of our other large towns and cities—his labours embraced a far wider range. First, improved dwellings; secondly, a proper water supply; thirdly, efficient drainage, sewerage, and ventilation; fourthly, the provision of

pure unadulterated food and drink for the people, and the punishment of the offender who plundered the poor by the use of light weights and measures, as well as by vending unwholesome food; fifthly, the opening of public parks, and the preservation of open spaces and commons for the people; sixthly, public baths and wash-houses, and hospital accommodation. These are a few of the principal measures to which Mr. Godwin has given his life-long advocacy; but these measures may be supplemented by many others of a similar kind, all intended for the elevation of common humanity. Among the earliest as among the latest of his services were those in the interest of art and science, of primary and technical education for the working and artisan classes. If from twenty-five to thirty years of an active professional life as an architect and journalist—of a busy life supplemented by the additional labours I have described, of labours undertaken without fee or reward (except a good name)—deserves no public recognition at the hands of Government or society, no man yet that ever lived deserved it. How many thousands of valuable lives have been saved by the sanitary reforms begun by George Godwin, and unceasingly advocated in the pages of the *Builder*? How much has the State been enriched—how much less is the annual mortality of the population—how much more pure are the waters we drink—how much better are the homes and dwellings of our people? These questions need no answer, for the statistics of the country and the present Census Report prove it to a demonstration.

I have done, yet I feel I could say much more and fail in conveying a proper estimate of that man's labours and services to society, in whose behalf I offer this humble tribute of my praise. Whatever form the State or the public recognition of Mr. Godwin's labours may assume, or whether it may come sooner or later, it is a satisfaction to know that it is well deserved, and that the profession of journalism and architecture will be worthily represented in the recipient of the honour.

A SANITARY COMMISSIONER
AND JOURNALIST.

London, N.E., September 26, 1871.

SANITARY PROGRESS IN THE CITY
AND PROVINCES.

SINCE the change in the temperature of the weather, although activity is still to be noticed in some provincial districts, the energy displayed is not so general as it was during the months of July, August, and the beginning of September. Town Commissioners should in no instance relax their efforts in consequence of the approach of colder weather. In fact they ought to redouble their efforts while their several districts are still untouched by the presence of any serious epidemic. Plague may often slumber, but if not killed in the germ, the summer heat may warm it once more into life.

The Drogheda Corporation are still paying commendable attention to the sanitary condition of that town in the matter of the public sewers, the water supply, and the removal of nuisances.

Whether the drainage connected with the Portarlington Petty Sessions Court is in any better condition than the accommodation in the court itself, we are not informed, but we hear that "the room in which the court was held was densely thronged, which caused some people to fear that the wretched apartment would give way beneath them. It is a scandal that the important business connected with the court has to be transacted under the disadvantages which are experienced in this room. The table (!) at which their worships preside is positively rotten and falling asunder, and to-day the props which sustained one half of it gave way during the proceedings. There are the remains of what were once chairs for their worships to sit

upon, and no one could be compelled to undergo severer punishment for an hour or so, than to have nothing to rest upon but one of these chairs. It is said that Lord Portarlington has long since resigned all claim to the miserable fabric, and it is said, also, the ownership now rests in the hands of the guardians of Mountmellick Union. We would urge on the proper persons, whoever they may be, for the credit of the town, to remedy the disgraceful state of things as they appear in this sessions house." So speaks the local paper, and we agree with the advice.

In Newry extensive improvements have taken place in connection with the Infirmary and Fever Hospital. The *Telegraph* writes:—

"The house has been painted and whitewashed. The black paint on the window-panes, which once did duty for window-blinds, has been removed, and blinds have been put up. Ventilators have been added where necessary. One great deficiency still remains. We allude to there being no water supply. Baths, though much required at times in treatment of disease, cannot be given, and the sanitary state of the house is, as might be expected, very defective. Water, at present, has to be carried from a distance in cans. An effort was made to sink one of Norton's tubular wells, but the presence of rock everywhere in the grounds caused a failure."

The Borough Magistrates, we also observe, are inflicting fines on those guilty of creating nuisances. We think the local authorities in Newry ought to procure fitting receptacles and places for the deposit of refuse, and help the very poor to some extent in keeping their homes and surroundings more cleanly.

In the Mountmellick Board of Guardians some worthies were lately at loggerheads about the definition of a gentleman. We would reply to the guardians—Gentlemen, furnish us with a fair statement of the sanitary state of your workhouse, and then we will tell you how far its board are worthy of the term.

The County Surveyor has submitted a very sensible report on the Workhouse Sewers in Naas. We give an extract:—

"The Workhouse is drained by numerous small sewers connected with two mains which are placed one at each side of the principal range of buildings. Those main sewers open into Millbrook stream; both discharge liquid sewage from the lavatories, laundries, and kitchen, and from urinals at the male side.

The sewers do not take sewage from the latrines generally—there are special arrangements to dispose of that. Two plans are in use—one is, that of having wagons on moveable receptacles; the other is, that of having large cesspits. Sewage from the latrines accumulates in the wagons or cesspits, and is removed to the manure heap from time to time.

It is to be observed that if sewage be allowed to accumulate mainly in the cesspools, some of it will overflow into the sewers, as there are openings between them, but at a higher level than the sewage is ordinarily allowed to attain.

Besides the liquid sewage above mentioned, the soil from a water-closet in the building, at the entrance-gate, is discharged into Millbrook stream.

I believe the choice of expedients for preventing the Workhouse sewage polluting the stream lies between two plans, both requiring the construction of new intercepting sewers and an alteration of the existing sewers, so as to confine their duty altogether to carrying off rainfall drainage. One plan is, to intercept the sewage that at present flows to the stream, collect into a cesspit, and remove it periodically in the usual way. The other plan is, to dissipate the liquid sewage by irrigation or by absorption into the subsoil—providing a cesspit for the water-closet. There are facilities for carrying out either plan."

The Boyne Commissioners have met, talked, and departed—but not this life—without coming to any definite conclusion about some necessary work which requires to be done at the port of Drogheda. It would be desirable to see something done, but rival interests are let to interfere with the public good in the town of Drogheda.

Dr. Richard Halton, the Medical Officer of Health, has drawn up a lengthened report on the Sanitary condition of Kells. His revelations will effect a public good, even if his advice is not followed in every instance.

Dr. Halton's Report is one of the best Irish provincial reports we have met with for a considerable time. We regret we cannot print it *in extenso*. We give an extract of the dwelling accommodation of the inhabitants. The Doctor says:—

"I find that the sleeping population of Kells every night consists of 2,796 persons. These are lodged in 503 houses, giving an average of a fraction over $5\frac{1}{2}$ persons to each house. This would seem, at first sight, to be a very fair proportion; but, when we come to examine the matter more closely, it will be found in the highest degree unsatisfactory.

To do this, I will divide the houses into three classes—viz., first-class houses, or houses having a room to each inmate—of these there are 101; second-class houses, or houses which have over 2 rooms and under 6—of which there are 135; and third-class houses, which have only one room each, or, if so, is so over-crowded as to render it dangerous to health—of these there are 272, including the houses set in tenements, which may be looked on as the worst of the class.

As the great bulk of the population live in the third-class houses, and as it is in them that the most grievous sanitary evils exist, I will devote my principal attention to them; I will, therefore, in this place, briefly state that, as a whole, the first and second-class houses are in a fairly satisfactory condition, or can easily be made so, the principal defects being the want of traps to the sewers, and, in some few places, manure heaps, &c., in the yards, which are easily removable, and which defects the Nuisance Inspector will, no doubt, at once cause to be remedied.

The third-class houses, with the exception of the houses set in tenements, with which I will deal separately, are, for the most part, one-roomed cottages, each containing a whole family, with all its belongings. Sixty-two of these houses have no back door, and no yard; consequently, all the refuse and filth of the house must go into the street. Ninety-seven houses, though having a back door, have no accommodation in the yard, which is thus, from the necessity of the case, covered with scattered and evil-smelling refuse.

The number of houses that have animals lodged with the family is 38, with an animal-sleeping population of 46 pigs, 3 mules, 4 asses, and 1 pony. In the majority of these places the smell in the daytime, with the door open, is very bad; at night, when the family are all in bed, with the door shut, one would say the stench must be intolerable.

This is bad enough; but I have no hesitation whatever in saying, that the tenement-houses are, in many cases, worse still.

There are 15 of these dens in the town, with an average population of 12 in each, largely increased each night by a fluctuating number of casual lodgers; and in four of them the permanent inmates number, respectively, 22, 21, 19, and 22.

It is difficult to speak with calmness of the state in which these poor people are obliged to live—a family, and sometimes two, to each miserable room; the floors coated with dirt; the windows closed up with bits of tin or board, or stuffed with rags, thus excluding both light and air; the staircases rotten, tottering, and unsafe; in one case, the lobby is perfectly unprotected by banisters, and the wretched mud or plaster partitions between the rooms shake on the least push.

In one of these houses, where seven families reside, there is no accommodation whatever, except an open sewer, reeking with filth, in the yard common to the house itself, and to the inmates of three wretched cottages behind it.

In another of these houses, all the filth of the house is thrown out of the back windows, and forms, in the plot of ground immediately behind, which is too small to call a yard, a horrible open dunghill."

This is a sad picture, indeed, of Kells, but if the exposure leads to reform we will rejoice. Dr. Halton speaks also of the water supply and the sewerage of the town. The water is far from being pure, being procured from pumps, and having such foul surroundings as he describes. He truly adds:—

"But even if it involved some risk, the risk would be well undertaken to save our fellow-creatures from the horrible conditions under which they are at present obliged to live. There are eighteen families in this town at present who each sleep in one bed, and there are many more where any decent separation of the sexes at night is unattainable.

There can be no second opinion as to the advisability of using every effort to get rid of such a state of things. In the words of one of the most eminent sanitary authorities of the present day—'To be subject to these influences is a degradation

which must become deeper and deeper for those on whom it continues to work. To children who are born under its curse, it must often be a very baptism in infamy.' But leaving out of view the moral aspect of the question, frightful as that is, its physical consequence is so terrible, it should awaken every instinct of humanity. These poor people are being slowly but surely poisoned. It is apparent in the pallid countenance, the languid gait, the drooping posture; in the words of Mapother:—'Although bad air does not burn suddenly, poison, or devour him who inhales it, it depresses, removes appetite and energy, and, keeping the flow of life at a low ebb, predisposes to mortal disease.'"

Dr. Halton deserves the thanks of the community for his excellent report, and his advice in general is practical and good, and worthy of being followed.

Coleraine needs a little more attention. Nuisances in Brook-street are pointed to, and a memorial was lately signed by a number of the subscribers to the Town and Mechanics' Institute News Rooms, praying the attention of the authorities to the foul effluvia arising from the water-closets of the Town Hall. This should be looked to.

In Ballymoney the Commissioners, at their local meeting, gave their attention to some complaints made regarding the defective state of the sewerage of the town. The matter is to be considered with a view to a remedy.

In Dublin and the surrounding townships some useful sanitary work has been lately effected. In regard to the city, however, it would give us greater pleasure could we report that the necessary work required—and required immediately—was begun, and was likely to be prosecuted with vigour.

MISCELLANEOUS.

WORKING MEN'S INSTITUTE, BELFAST.—A meeting of the trades' delegates and friendly societies was held in the Oddfellows' Hall, Belfast, on Saturday evening, to take into consideration the opening of the Working Men's Institute. Mr. Gaffikin, the President of the Working Men's Club, made a statement, from which it appeared that £3,000 had been subscribed towards the erection of the building, and that there is a debt of about £2,000. It was hoped that the Exhibition about to be held would go a good way towards clearing off this debt. Some discussion took place as to the position the working men would have in the management of the Institute, and the secretary said that though the Institute had been built for the working classes, who would have the management of it, he had to complain that the working men had contributed nothing, although they had been asked to do so.

A HAPPY FAMILY.—A man named Tutton was on Tuesday adjudged a nuisance by the Hamilton magistrates, for living, in conjunction with his brother, in a ten feet square room, with six dogs, six goats, and a cat. They all ate out of one dish!!!

FATAL ACCIDENT AT A QUARRY.—A fatal accident occurred at the Combe Down Stone Quarries on Monday week. An elderly man was working in company with another on a piece of stone in an underground quarry, when a large block of stone from the ceiling fell and crushed him to death. The other man escaped, as did also two "pickers" and a boy who were in the same working. The quarry belongs to Messrs. Stone, who employ some 300 men, most of their quarries being underground. The deceased had only a little while before expressed his belief that the roof was perfectly safe, and so great has been the care taken that the ceiling should be properly supported, that an accident of this kind has not occurred in any of their quarries for many years past.

FORTIFICATIONS OF PARIS.—The work of repairing the fortifications of Paris is almost completed. However, men are still occupied from the gate at the Point-de-Juror to that of Auteuil. As to the forts, nothing has as yet been done beyond staying up the walls which were falling in ruins, and repairing the soldiers' lodgings. The serious operations in this matter will only be recommenced when the new plan for the fortification of the capital shall have been decided upon.

The municipal authorities of Rome have determined to place on the Pincian Hill the busts of some illustrious Italians, and among the names are those of Alfieri, Donizetti, Rossini, and Mercadante.

HYDRAULIC POWER APPLIED TO THE STAGE.

—In the "Notes from Paris," in *Engineering*, we are informed of the successful application of hydraulic machinery to all the purposes of the theatrical stage. M. Guenel has recently established his apparatus at the Gaité Theatre. The water is taken from the city mains under a pressure of three atmospheres; the accumulator is formed by the barrel of an hydraulic pump; the piston speed is a little more than 3 feet per second. This power is transmitted to the objects to be moved by four-fold tackle, which reduces the power to one-fourth while quadrupling the speed. By this means a large power, with a velocity of 13 feet per second, is obtained, transferable by pulleys to all parts of the stage where it may be useful. A single attendant can regulate the machinery, move the scenes, raise or lower the curtain, or move carriages or other objects on the stage.

GLASS ROOFS AND PAVEMENTS.—A patent has been taken out by Mr. J. H. Johnson for the construction of frames or gratings intended to receive glasses for the purpose of forming illuminating roofs, coverings for areas, and walking surfaces for side walks when light is required to be transmitted therethrough. It consists in casting, in such frames or grating, grooves or channels, or in perforating or partially perforating the same in rows, or in combining perforations or partial perforations with grooves or channels, in order to facilitate the sub-division of the said gratings into separate smaller portions or sections of any given dimensions, according to the requirements of the particular roof or structure to be erected. Also in making the lights or glasses for this and other descriptions of illuminating gratings intended for foot pavements in such a way, as that the glass itself shall in a measure act as the medium for protecting its surface from being scratched by the feet of the passengers. —*Builder*.

THE GROWTH OF LONDON.—Now that the decennial stock-taking of our population is completed, it becomes interesting to compare the results with hypotheses which have in earlier days been advanced in reference to the increase of population. Especially is this the case with London, whose growth two centuries ago threw an eminent statistic of that time into such bewilderment as to induce him to predict that in less than 200 years London would absorb almost the entire English population. In the year 1683 Sir William Petty put the metropolitan population at 670,000; and, having calculated that this number would double itself in forty years, he went on to estimate that by the year 1840 there would be, out of a total population for all England of 10,917,389, no less than 10,718,880 in London. One would have thought that to a mind far less acute than Petty's the absurdity of this conclusion would at once have suggested that a fallacy or fallacies must be underlying his hypotheses; but, so far from this being the case, he further deduced as "certain and necessary" that the growth of the city "must stop before the said year 1840," and, in fact, would be at its utmost height about the year 1800, when its population would amount to 5,359,000. The census of 1801 demolished Petty's theory, by showing that the population within the bills of mortality was 744,803, and in 1841 it was 1,351,396, the total population of England at the latter date being 15,914,148. London has gone on increasing until the present time, and now contains 3,251,804 persons, or about one-seventh of the whole population of England and Wales. —*City Press*.

EXHIBITION OF FINE ARTS, MECHANICAL EXAMPLES, MODELS, &c., IN BELFAST.—We are glad to learn that the secretary is daily receiving promises of contributions to this exhibition. Last week, Dr. Moore, R.H.A., at the request of the committee, accompanied the secretary to Bellahill, the residence of M. R. Dalway, Esq., M.P., and selected from his valuable collection some good pictures and articles of vertu, including an original painting of Mary Queen of Scots when Dauphiness of France; an ancient map of Belfast Lough, showing the Landing at Carrickfergus of King William III., dedicated to him; the ancient Dalway harp, originally of the Fitzgeralds and O'Neills, and latterly of the Dalways; an ancient vinegar-te; and the thermometer of the celebrated Captain Cook, used by him in his voyage round the world. Some of these relics have been for centuries in the Dalway family.

Mr. Hallenbeck writes to our Philadelphia contemporary, in regard to yellow light for dark rooms, saying, "Better than all glass, stretch over the opening used as a window thin sheet rubber. This keeps out all actinic light, and you can work with your room as light as you please without causing fog." —*Photographic News*.

STEAM OMNIBUSES.—The traction engine or road steamer is in truth now passing through a stage quite familiar to the older builders of portable engines. The first portable engine of which we can find any record was built by Howe, at Boston, in Lincolnshire, about the year 1836. Howe constructed twelve of these engines, and then stated that he could hope for no more business in that direction, as he had supplied all the portable engines that could possibly be required. What would he say to firms turning out 18 to 24 engines a-week, and who are yet unable to meet the demand made upon them? We feel perfectly confident that when once the road steamer has attained the perfection now possessed by the portable engine, the desire for its service will be even greater than that which exists for those of the portable engine. The demand will be principally for foreign countries, although there is plenty of room for good traction engines in Great Britain. The railway, however, at home renders the steam omnibus a very secondary affair; but the case is different in India, Turkey, Greece, Italy, Russia, and our colonies. There railways in enormous districts have no existence, but British enterprise, backed by the wishes of influential inhabitants of such countries as those we have named, has determined that, if railways cannot be had, then good common roads must be made, and with the road comes the demand for the engine to work it. Already in Greece, Turkey and Russia great steps are being made. In the Morea over 70 miles of road—a small portion of a large concession—are being constructed, uniting two principal towns; and it is a noteworthy fact that the moment a road there is projected English engineers are asked for engines to work it.—*Engineer.*

A sponge paper has been patented in France. It is made by uniting finely divided sponge with ordinary paper pulp. It absorbs water with avidity, and retains it for a considerable time. It is found especially useful by surgeons, and it has already received several technical applications.—*Athenæum.*

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filed with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

SCIENCE AND ART.—A striking instance of the immense value a small piece of steel may acquire by the great power of skilled mechanical labour is the balance-spring of a watch. From its extreme fineness and delicacy 4,000 weigh not more than one ounce, and exceed in value £1,000. A most interesting little work, describing the rise and progress of watch-making, has been published by J. W. Benson, 25 Old Bond-street, and the City Steam Factory, 55 and 60 Ludgate-hill. The book, which is profusely illustrated, gives a full description of the various kinds of watches and clocks, with their prices. Mr. Benson (who holds the appointment to the Prince of Wales) has also published a pamphlet on Artistic Gold Jewellery, illustrated with the most beautiful designs of Bracelets, Brooches, Ear-rings, Lockets, &c., suitable for wedding, birthday, and other presents. These pamphlets are sent post free for two stamps each, and they cannot be too strongly recommended to those contemplating a purchase, especially to residents in the country or abroad, who are thus enabled to select any article they may require, and have it forwarded with perfect safety.

TO CORRESPONDENTS.

BUILDING SOCIETIES.—It is our intention, on an early occasion, to devote a paper to the subject of Building Societies, so called, their uses and abuses, giving an analysis of their income and expenditure. We trust that the building societies of Dublin will not, or are not, becoming what many of those in the sister kingdom have already become. How far they are fulfilling, or have fulfilled, their proclaimed mission we will hereafter show. The loan principle carried out in many of these building ventures is simply a delusion, and the benefit accruing to the shareholders not far removed from the mythical. It is not our intention to condemn *in globo* the principle of building societies, but to show that they are not worked satisfactorily, and how far certain of them are from being safe.

IRISH ARCHITECTS.—R. H. A. acknowledges, with many thanks, further interesting particulars concerning the lives and labours of native and foreign architects once practising in Ireland. Among others, are Johnston, Morrison, Papworth, Hargreave and Hart. Additional particulars concerning these and others, however scant, will be most acceptable. Of present living architects and engineers of long standing and of note, information concerning their earliest works will be most useful also.

DRUMCONDRA HILL.—The high pathways on each side of Drumcondra-hill are simply explained. The roadway was cut right through the hill during the last decade, we believe, of the Irish Parliament, or, at all events during the time that the Hon. John Foster was Speaker in that House. The high footpaths in Summer-hill are the result of similar treatment.

ALDERBOROUGH HOUSE.—This was constructed as a mansion for a nobleman of that name in the latter end of the last century. Tradition says her ladyship, for whom her lord specially constructed it, refused to live in it when finished. We do not much wonder at this, for even so late as twenty-five or thirty

years ago the house was surrounded with a complete swamp, and Lower Gloucester-street, between Buckingham-street and Caroline-row, was several feet lower than at present—a regular dead horse gully hole. A Mons. Feinagle, the inventor of a system of mnemonics, or teaching from memory, held a very good preparatory school in Aldborough House for some years in the earlier part of the present century. It was transformed into a depot for soldiers on the occasion of the memorable prevented monster meeting of Clontarf, in October, 1843, and it has been used since, either more or less, for the purposes of a military barrack.

DRAMATIC CRITICISM.—Since our article on "Art, Literary, and Theatrical Criticism," as announced in our last issue, was in type, a letter has appeared in the London *Daily Telegraph*, signed, a "Dramatic Critic." Those who may think that our article is too severe in some sense should read the letter. Perhaps in our next issue we will give an extract.

ASPHALTE.—Read our article thereon. Some papers on Art and literary subjects, intended for present issue, we are obliged to hold over until our next.

RECEIVED.—We are in receipt of particulars of our native sculptor, Edward Smyth, of the Irish parliamentary era, some of which have reached us through his grandson. A more fitting acknowledgment hereafter.

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ILLUSTRATION:
NEW BUILDINGS, CARLISLE-ROAD,
LONDONDERRY.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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VOL. XIII.—No. 284.

The Social Science Congress and the Public Health.

SINCE our last issue the Congress has opened, continued, and terminated its labours for this session at Leeds. A variety of questions of a deeply important nature were discussed, relating to education, trade, law, and sanitary science. That of education, primary and technical, and that connected with sanitary reform, concerns us most, for upon them both the success of all the others may be said to rest. Without education there can be no advance, and without a due attention to sanitary science education is robbed of more than half its advantages.

We give elsewhere in our columns an extract from Sir John Pakington's opening address, which is instructively forcible and sound, and we will in our future issues present portions of other papers read in the different departments, which bear upon other matters particularly interesting to the community in general. At one of the evening public meetings, which was not the least important feature connected with the sittings of the Congress, and at which the Mayor presided, addresses were delivered by Mr. George Godwin, Mr. Newmarsh, Mr. Mundella, Mr. Holland, and others. As we anticipated, the President of the Health Department directed attention to the sanitary shortcomings of Leeds, in pithy and telling sentences, which went right home to the hearts of the audience—an audience composed to a great extent of the working men of Leeds.

Mr. Godwin scouted the idea of any real antagonism existing between labour and capital, and warmed up his audience by exclaiming—"What is health but capital! Happy the man whose capital is a sound mind in a sound body, bequeathed to him by the health of his forefathers, and maintained by his own prudence." No words could be more true, or more pregnantly suggestive of thought. It is the low condition of the public morals and the public health in the numerous towns of Great Britain and Ireland that fosters the growth of the many evils which the law, as it is at present administered, is unable to grapple with. The individual education of the man, whether he be a clerk, a shopkeeper, or an operative, is imperfect, however proficient he may be in his calling, if his health is unattended to, or remains always a prey to those deadly public evils, engendered through neglect of sanitary laws. The working man who is particular about his own home will find means by his example of making his neighbours more particular, or of eventually ridding himself of contact with them. The individual who undervalues his personal health, and vegetates for his short lifetime amid foul surroundings, becomes, in a measure, part and parcel of the filth by which he is surrounded. He is his own self-destroyer, his own self-murderer, and the unconscious murderer of his offspring. Poverty and rags may stand excused sometimes, and corporate neglect may justly be

awarded a portion of the blame that penury is unable to escape, but there are thousands of constantly employed working men and traders who are daily, yea, hourly, stabbing themselves to death. Could these foolish people but realise the priceless gift of that health which many of them who, notwithstanding their positive defiance of decency and cleanliness, possess to a limited extent, they would prize it next to that rest they hope to obtain in another world.

Health is, in sooth, the greatest capital that any man need wish for. Without it life is miserable, and talent and genius a source of sorrow often instead of a source of profit. How many homesteads in Ireland might be bright and cheerful if health had an abiding place in them—how many wives might not feel glad and joyful, who are now husbandless—how many children, who are fatherless and motherless in poorhouse and orphanage, might not have smiled and lived to be a blessing to parents whom they will never know—how many useful lives might there not have been saved from the slave-killing process of dirt, disease, and neglect in work-houses, and even in public hospitals? Oh, filth, blindness, and human folly, thy victims are many and thy crimes manifold? In heaven's name let cleanliness be inculcated here and abroad, in our primary schools, and at home. If necessary, let it be enforced by law within doors as without. Let it form part of the education of the child, and it will grow with his growth, strengthen with his strength, and blossom in his manhood. It would seem that nothing short of a dreadful plague will drive many of our local and corporate authorities to the performance of the most vital duties of their office. A little spurt is made now and again to show that they have been dreaming at least something about their duties. A few dozen of people are fined, a few lanes are cleansed, a few noisome dwellings are whitewashed, and a miserable huxter or two is pounced upon for the purpose of "making an example," the storm blows over in a week, and the reign of rottenness and filth is again triumphant. This is sanitary vigilance with a vengeance. Political rivalry fumes, personal antagonism lies and sputters, and incarnate egotism rides roughshod in council, press, and forum, whilst corruption, rottenness, feculency, and chronic filth is eating through and undermining the constitution of our city. Who will save us if we cannot save ourselves? Who will pity our fall while we remain objects of the world's contempt and scorn?

If we write strongly, we feel deeply our city's degradation and decay, and with no lie in our teeth, nor a lip in the dust that a time-server trod, we rend the veil that covers the loathsome sink that seethes beneath us, and exhibit the legacy of cumulative filth that our city rulers bequeath us.

We at least will strive and do our duty with no cowardly misgiving that we have injured ourselves by our public advocacy, and endeavour to save the lives of our fellow-worms.

FRIENDLY, BENEFIT, BURIAL, AND BUILDING SOCIETIES.

We are not satisfied at all, nor do we believe are the great majority of the public, at the free and easy investigation which has taken place in this city by the Parliamentary Commissioners into the nature and management of friendly benefit societies. That some

good will result from the inquiry instituted, we will not deny; but we consider the investigation has been too expeditious, and not at all searching or exhaustive. If time and facilities were given, startling revelations of deception, oppression, and fraud could be produced. We learn from the evidence of the registrar, Mr. Littledale, that up to the 25th of September last there were returns of 350 societies, but half that number again was not registered. Twelve years ago—or, say, in 1859—there were 1,050 societies on the registry; since that 400 additional ones were added, and out of the 1,500 enrolled, only 600 alone exist. Several societies, which appeared some years ago on the registrar's book as existing in the provincial districts, have ceased to exist. Famine, want of employment, death, and various other natural causes may be adduced, to account for this, but robbery, incompetency, and other cognate evils, may also be adduced in proof of the break-up of many registered and non-registered societies, that once promised well.

Friendly, benefit, and burial societies have been for many years in existence in Ireland, and, from our knowledge of them, with very few exceptions they are all badly conducted. The fact that some of them are placed under the patronage or presidency of Catholic or Protestant clergymen does not prevent them from being used as engines of fraud. The lower classes of our countrymen, the labouring portion particularly, are very fond and anxious to be members of a society which they know or believe will assist them in case of a death in the family. Husband, wife, and child are paid for, that the parish coffin may be avoided, and a decent Christian burial obtained.

The majority of the secretaries of these friendly burial societies are ignorant and illiterate men—this is their common characteristic in England and Scotland as well as in Ireland. Few of them know how to properly keep a book or make proper entries, and we have known some of them who could hardly write their own names legibly.

Some of these societies are started by the former collectors of other similar societies, dismissed collectors, or those who resigned because they could not carry out with impunity their own darling schemes of aggrandisement. Suspecting that the president or secretary of their society was minding "number one," in preference to minding the interests of a great many, these collectors ambitioned to imitate their paymasters, and if failing in obtaining their share of the "swag," they set up on their own account. The travelling inspectors of some of these friendly societies—burial and assurance—are unprincipled fellows. We have known some of them to put up in first-class hotels, and live at the expense of the members. The career of the Liverpool St. Patrick's Society ought to be known to everyone. It has recently changed its name, being ashamed of its origin and surroundings. Many of its officers from time to time had to decamp, "leaving their country for their country's good," but ruining at the same time hundreds of poor struggling people. The present writer more than once during the last seven years was threatened with legal proceedings if he did not retract "the injurious statements he made reflecting upon the society." The statements were meant to be injurious, and we have the satisfaction of knowing that they effected much good. We suggested a Parliamentary inquiry in England long since,

which was held, and we assisted directly and indirectly in making that Commission more useful and exhaustive than the present one promises to be.

We openly assert that the poor are plundered piecemeal in these societies by lazy vagabonds, to whom a hard day's work would be the greatest agony. Collectors get their commission from four to six shillings in the pound, according to the state of the funds, or the rivalry that may exist to cut out the ramifications which a rival society may be spreading. Poor members are not regularly called upon for their money. If they happen to get feeble or are growing old, though they may have been several years in one of these societies, schemes are adopted for putting them out of benefit, and of disputing their claims. Sometimes the poor creatures compromise their just claims by accepting a considerably less sum. These frauds are perpetrated at the instance of the secretaries, and, perhaps, more often both collector, secretary, and committee conjointly. Be it understood that the committees of some of these friendly burial and sick and assurance societies is betimes a pure myth when the society has existed for a while. The honest and straightforward members of the committee are voted out, paid out, or turned out, on some pretence or other, and the original committee dwindles down to a family circle of three or four, with common interests. The St. Patrick's Society, of Liverpool, and other kindred societies, having branches in different parts of the three kingdoms, have often paid more for collecting than the income of the society would allow. The management of a branch must be a costly affair, when it takes £15,000 out of £35,000 to manage it. Is this management or mismanagement, we wonder? and yet this is the state of one of the societies under notice.

There is a regular trade carried on in the sale of the books of collectors who would wish to resign. Like some of the fat livings of the church, a tidy price is paid for the collector's well-thumbed book—prices varying from five to twenty pounds. A book with three hundred or five hundred members, paying from threepence to sixpence each week as their subscriptions individually, would afford a handsome commission to the collector, getting five shillings in every pound collected.

Of course some of our statements will be denied, but if they do not hold true in regard to one particular society, they are sure to be true in relation to another. Some of those societies and their branches we have known to subsidise the Press in particular cities and towns to print garbled and cooked reports and balance-sheets of their quarterly or annual meetings. We not only assert this, but we can prove it if necessary. We have also known the sums of ten and twenty pounds to be paid for a short editorial notice favourable to the society. With the Rev. Mr. This and the Right Rev. Mr. That at the head of the society as patron, the ear-wigged poor took it for granted that nothing could go wrong. These presidential clergymen do not bother their heads in examining the accounts of these *humane* burial and benefit societies. They take for granted that the secretaries thereof speak the truth. We have known hundreds of poor and indigent roomkeepers, tradesmen, labourers, and others, to be heartlessly plundered by those nicknamed friendly benefit and burial societies. We would caution those who may read our words from en-

tering into unregistered societies in particular. Some English ones having branches in Ireland, though the society may be a registered one in England, it is not generally, if ever, so here. There is no protection for the members belonging to such a society. They may be and are cheated, but the Friendly Societies Act affords them no remedy. There is a class of poor societies in this city which are in the habit of dividing their funds at Christmas. Some of these have existed for years, but they afford but little relief, nor can we think they offer inducements to any but the very poor. Societies of this kind may be said to dissolve every year, for when the money is divided the society is at that moment bankrupt, without funds or credit. If deaths take place among the members, the expenses to meet the funeral is subscribed for at sixpence or a shilling from each member; but if a number of deaths should occur within a month or so after the yearly division of the funds, a parish coffin would be inevitable on the part of some of the deceased members. Even in these very poor societies embezzlements take place, and the members lose all. We must postpone further remarks at present on the evils of these societies. The subject of Building Societies demands at our hands a careful consideration, and we promise our readers that we will return to the subject in good time.

THE NEW THEATRE ROYAL, BELFAST.

THE New Theatre Royal, Belfast, is being completed. The old theatre was closed in March last, and in a few days after the work of demolition began, the foundation of the new structure was laid. The work since then proceeded rapidly. There are two fronts; one—the principal one—in Arthur-square, and another in Castle-lane. The former measures sixty-feet, and the latter has a street frontage of one hundred and seven feet, exclusive of an extensive wing which extends a considerable distance in the rear of Mr. D. Burns' Theatre Tavern, and occupies a portion of the site of the now defunct Shakspeare Music Hall. The Arthur-square elevation is about eighty feet high, and the distance from the basement to the top of the painting-room at the back of the edifice is some ten feet higher. The house is built entirely of brick, with stone dressings. On the ground floor in front of the Theatre there are eight ponderous columns of polished Aberdeen granite. The bases are of the same material, but are unpolished, and the capitals at the top are of carved Cookstown stone. The columns referred to support five arches of red Whitehaven stone, the spandrels between them being ornamented with Shaksperian scenes, sculptured in Portland stone. With the exception of the outside two, they are triangular in form. The second storey consists of a Gothic arcade, the columns of which are of polished slate. There are thirteen arches, each containing a medallion of a celebrated actor or actress. Great discrimination has been exercised in the selection of the subjects, and few objections could be raised to the general result. Mr. Warden's head occupies a position immediately over the dress circle entrance, and the space above the upper box door is graced by a representation of Mrs. Warden. Barry Sullivan, Charles Kean, John Phillip Kemble, David Garrick, Madame Titiens, William Charles Macready, Samuel Phelps, Helen Faucit, G. V. Brooke, and Kate J. Bateman, also appear on this portion of the Arthur-square elevation. The likenesses are all good; on the whole Mr. T. Fitzpatrick, the sculptor, has no reason to complain of the success which has attended his efforts. The third storey consists of a series of small windows, with brick piers, crowned with capitals of Scrabo stone; and the fourth is composed of an arcade, of

seven arches, in each of which is a long narrow window. These columns are of polished slate, and they are topped with capitals of Cookstown stone. The spandrels similar to those of the first storey, are of Whitehaven red stone, and in them are placed medallions of famous dramatic authors. There are eight medallions, two of which, however, have been allowed to remain blank, and the other six are filled up with portraits of Shakspeare, Schiller, Lytton, Goldsmith, Sheridan, and Meyerbeer. Long narrow windows with brick piles and stone capitals are the features on the Arthur-square front, and above all rises a tympanum, in which is an admirable representation of the Royal Arms, from the workshop of Mr. Joseph Holland, Corporation-street. On each corner is built a chimney, which adds to the uniformity of the building. On the Castle-lane side of the building there are also several carvings of interest. Immediately round the corner from Arthur-square stone likenesses of Messrs. E. A. Sothorn, J. L. Toole, J. B. Buckstone, and Charles Mathews, meet the observer's view. The public entrances—four in number—are each six feet wide, and the doors are so arranged that, in case of fire or any other mishap, the crowd rushing could not close them up, as has been the case repeatedly under such circumstances. The stairs are of Riga oak, and each step was built in as the building progressed. The stage door is at the upper end of the Theatre, next the Theatre Tavern. The stage and its entire fittings are the work of Mr. J. R. Chapman, a gentleman who has fitted up stages in some of the best theatres in London and the provinces. It has cost Mr. Warden close on £1,000, and is considered by competent judges of such matters to be one of the most complete, if not the most complete, stage in the three kingdoms. From the footlights to the back wall it measures forty-one feet. The entire breadth is fifty six feet, with a proscenium opening of twenty-six feet by twenty-eight feet. The footlights are perfectly in keeping with the other excellent arrangements of the Theatre. They are entirely concealed from the audience, and the light is thrown upon the stage through a glass reflector, which, besides protecting the performers from danger, enables the person in charge of it to throw any colour he chooses on the stage. At one side of the stage, immediately at the footlights, is a large brass plate, on which are sixteen gas taps with handles. From this point the gas can be turned off or on in any part of the house, or all the house. It is, however so constructed that, although the handle may point to "shut," it can be immediately relit by a contrary turn of the same handle, there being a small connecting pipe attached to the main which prevents the gas from being utterly extinguished. In this plate there are holes corresponding to the handles, and at night the manager can with his key turn off the connecting pipe, and so put out all the gas in the house. The principal tap is immediately below the plate. There are four wings on each side, thus making five entrances to the stage; and at the extreme back, in the Castle-lane side, is a large door, over which is a pulley for the purpose of lifting and taking in scenery, luggage, &c. The wings, flats, &c., are the work of Mr. Thomas Huby, the stage carpenter, who deserves great credit for the manner in which he has fitted up the various appliances above the stage. On him devolves the working of this department, and the production of the different effects. At the end of the hall before-mentioned there is a boiler for heating water; and on the right side, and immediately under the stairs, the hall porter's lodge is situated. Beneath the stage, on the Castle-lane side, are the band, ballet, and supers' rooms. In ascending the stairs and passing the "mezzanine floor," the visitor, after climbing close on fifty steps, finds himself on a level with the stage. Here in the wing which extends behind Mr. Burns's premises is the green-room, and immediately behind it the "stars'" dressing-room. The former apart-

ment has two entrances, one off the lobby and another off the stage. It is a comfortable room, with a gasolier in the centre and tasteful brackets round the wall. The "stars' room is fitted up with drawers and benches round the walls, and is supplied with a basin and two pipes for hot and cold water. In this respect it does not differ from the dressing apartments of the humbler performers, as there is a plentiful supply of both hot and cold water in all the rooms. Mirrors will also be provided. In the next landing there are three rooms, two of which are reserved for Mr. and Mrs. Warden; and further up are the ladies' apartments, two in number. One of them is intended to accommodate six persons, and the other seven. On the top flat are two rooms exactly similar to those below, intended for the male members of the company. From the dressing-rooms there are entrances to the "flies," of which there are two rows. Here, again, the visitor is bewildered at the mass of rigging and machinery he sees around him. The wardrobe is lighted from Castle-lane, and fitted up with sixteen presses, in each of which there are three shelves. Higher up on the same side is a property-room, and above all, high up over the pit and stage, are the painting-room, carpenters' shop, and what is known as the "gridiron." On the very top of the house, immediately above the stage, a large tank is placed; it is estimated to hold about two thousand gallons of water, and matters are so arranged that on an alarm of fire being given, four jets of water could be instantaneously directed on the burning part of the house. The proscenium will look remarkably well. Like the other parts of the house, the decorations are of white and gold. On the arch are the words—

"All the world's a stage,
And all the men and women merely players."

in tastefully executed letters; and below is a beautiful painting of "The Seven Ages of Man." Shakspeare is represented in the centre, at the back, listening with attention to an angel who is inspiring him. In his left hand he carries a scroll of paper, and in his right a quill. The figures illustrative of the seven ages begin at the right, with the infant, and go on through the schoolboy, lover, soldier, justice, and pantaloons to the "last scene of all," which is represented by a skeleton draped in black, and standing in a grave into which the "lean and slippered pantaloons" is looking. To the extreme left of the picture are two headstones, on one of which is painted "Charles Sherry, died Easter Monday, 1871." This picture is the work of Mr. Thomas Goodman; and, as the entire theatre will be a lasting monument to the late Charles Sherry, this painting and other artistic works in the building will perpetuate the memory of his friend and associate, Thomas Goodman. The ceiling is a perfect gem. There is a large sunlight in the centre, and from it there radiate eleven panels, on each of which is an allegorical figure. They represent architecture, astronomy, comedy, dancing, eloquence, history, music, memory, painting, and tragedy. Messrs. Frank Browning and Joseph Clare executed this portion of the decorations, and both gentlemen may be proud of the result. Between the panels are gilded bars, and the names of the different figures are also gilt. The curtain is the legitimate green, and the act-drop, which is from the brush of Mr. Walter B. Spong, a scene descriptive of the Bay of Messina. The new Royal is estimated to hold two thousand two hundred people—twice as many as the old house was able to accommodate. The pit, which runs in under the dress circle, is estimated to hold eight hundred, and the gallery is of equal capacity. Three hundred and fifty persons can be comfortably seated in the upper boxes, and the lower circle is arranged to contain two hundred and fifty. The pit has two public entrances; they are both fed from the same corridor, and are situated at each side of the stage. Independent of these there are two private doors—one from each of the box stairs. These are for the exclusive use of

the manager, and entirely under his control. In case of danger he could throw open these doors, and thus provide sufficient means to empty the house in a few minutes—in fact, these private doors form a prominent feature in the construction of the house. In addition to the public entrance to the upper boxes there are two others. One is from a spiral staircase, which begins on the stage and terminates at the gallery, and the second is at the back of the boxes, and communicates with an iron stair which leads up to the dress circle refreshment room, which is on the upper box floor. The manager can also have access to the gallery by means of the spiral stair. The dress circle is similarly provided with private doors, and there are also private passages from one corridor to another. The front of the dress circle, upper boxes, and gallery are composed of a handsome iron fretwork, ornamented with white and gold. The seats in the upper boxes are made of iron, with a leather strap behind. The cushions are red, and the seats are constructed so that they can be turned up on a hinge in order to make room for passers-by. The dress circle will also be provided with chairs, upholstered in red. The pillars supporting the upper boxes and gallery are not in front of the parapet, as in the old house, where they obstructed the view, but a seat back, so that they do not interfere with the view of the occupants of the front row. At the back of the seats a number of handsome gasaliers are suspended, and the apartment looking into Arthur-square is set apart for a crush-room. The theatre is amply ventilated.

The refreshment-rooms for the various parts of the house are all situated in the front, and the accommodation provided cannot be found fault with. As in the stage portion, the theatre lavatories and retiring-rooms are in abundance, and, when once inside the house, a visitor can sit out the longest performance without any inconvenience. The private boxes, of which there are two on each side of the stage, are beautifully ornamented, and the decorations of the entire theatre reflect great credit on all concerned. The upholstery work has been done by Messrs. N. A. Campbell and Co., Donegall-place. The gasfittings are by Mr. Robert Hayworth, of Manchester. The painting is by Mr. Thomas McQuiston, Arthur-street; and Messrs. Riddell and Co. did the plumbing. The gilding, of which there is a great deal, was done by Mr. Gaffikin, Arthur-square, and is a creditable style.

The architect was the late Mr. Charles Sherry, whose sudden death is in the memory of our readers. The building was carried on from Mr. Sherry's designs by Messrs. Lanyon, Lynn, and Lanyon, to whom Mr. Warden committed the completion of the work. Mr. Samuel P. Close personally superintended the finishing of the structure. The builder is Mr. Thomas McKeown, Grosvenor-street, who has faithfully and ably carried out his contract. The *Northern Whig*, to which we are mainly indebted for the above description, speaks in very high terms of the manner in which Mr. Thomas Goodman, of Belfast, executed his several Shaksperian representations. The *Whig* says:—"The conceptive power shown in these scenes is remarkable; and indicates in Mr. Goodman the existence of the genuine art faculty. He is a patient worker, a real though unostentatious lover of art for its own sake, and one who, continuing to develop the undoubted power which he possesses, must in time become much better known than he is at present."

Of Mr. Stevens, the sculptor, our contemporary also speaks in warm praise, and says of his entablatures that they "are calculated to conduce in a great degree to a substantial recognition of the merit which he possesses."

Mr. Warden may be congratulated on his success of adding to the architectural features of the Northern Athens, and worthily sustaining dramatic life in Belfast. We are also glad to see native talent so far utilized, and we confidently believe that in "stick and stone," brain-sweat and brow-sweat, no fear need exist that this country in future will

be found wanting in the domain of artistic or mechanical skill. Talent of all kinds and resources are lying waste in this country, and it needs but home encouragement, in conjunction with enterprise and capital, to set it in motion.

ASPHALTE PAVING IN LONDON.

In our last issue we spoke of the formation of the Irish Val de Travers Company, and the proposed laying of the principal streets in Dublin with an asphalt pavement. We gave proof on that occasion of its popularity in London, and we can now further confirm our statements. At a meeting of the City Commissioners of Sewers, held in the Guild Hall of London a few days ago, there were various memorials from public bodies in the city, and from inhabitants of various parts of it, urging the Commissioners to pave the thoroughfares with asphalt of one description or another. Wherever the asphalt experiment has already been tried in the city—and it has been tried in Chapside, in the greater part of Threadneedle-street, in Lombard-street, and in Old Broad-street—it has been generally approved, especially on account of its comparative noiselessness, its durability, and the little resistance it offers to the traction of vehicles of all kinds. A slight shower of rain is said to render it slippery for draught horses, but not so much so as might at first sight be supposed, and the prevailing opinion is that comparatively few horses fall upon it. Two kinds of asphalt are used in the city at present, where each may be said to be upon its trial—namely, that known as the Val de Travers, and that called the Limmer. The whole of the thoroughfare of Moorgate is now being laid with asphalt, to the great convenience and comfort, it is said, of the inhabitants there, especially the comparative quiet; but some delay has occurred in the completion of the work, arising from want of material being experienced by the contractor. The delay was made a subject of strong complaint before the Commissioners, as it had previously been. Wherever the gradients of a street admit of the experiment being adopted, the Commissioners seldom or never hesitate to give the asphalt a fair trial on being memorialised by the inhabitants, but it may still be said to be on probation in the city. They were reluctantly obliged, on account of the gradients, to decline an application for its adoption from the trustees of Sir John Cass's schools in George-street and Jewry-street; and also, for the same reason, one from the managers of the Royal Ophthalmic Hospital in Blomfield-street. On the other hand, on the recommendation of the Streets Committee, they ordered that so much of the carriage-way in Threadneedle-street as lies east of the Val de Travers asphalt, laid down in 1869, be paved with the same material, at an estimated cost of £605, less the value of the old paving. They expressed an opinion at the same time that it was not as yet expedient to pave with asphalt the western part of that street, it being in good condition. The commissioners resolved that the carriage-way in Cornhill throughout be laid with asphalt, at an estimated cost of £3,096, less £415, the value of the old materials. They also resolved that the irregular-shaped area intervening between King William-street, Lombard-street, Cornhill, Princess-street, and Threadneedle-street be paved with the same material, at the estimated cost of £2,495, less £451, the value of the old stone. Although the Commissioners have not definitely decided which asphalt they will in future recommend, it is believed as almost certain that the Val de Travers material will get the preference, as their work and material have given general satisfaction.

The great joiner—the lawyer; he can replace a tenant, impanel a jury, box a witness, bore the court, chisel the client, augur the gains, floor a witness, nail the case, hammer the desk, file his bill, and gouge the whole community.

CRIMINAL LITERATURE AND ART.

WE have a Viceroy in this island (acting as the substitute for his Sovereign,) who rules Ireland. We have a Lord Chamberlain who licenses plays, and permits their representation; we have a law-officer of the Crown in the person of the Attorney-General, with a minor personage, called a Castle Adviser, who, singly or conjointly, can file a bill of indictment in the interest of law and order; and, lastly, we have a public Press which can fitly report or ingeniously suppress proceedings that either favour or militate against their supposed interests. In the presence of all these powers and institutions intended as safeguards for society, lawlessness rides roughshod through our towns and cities, crime reigns rampant in our streets, and indecencies are openly or covertly introduced into our very homes. Need we inquire into the many phases through which immoral literature and obscene art is made subservient to the worst animal passions of human nature, and the professions that minister to these prurient tastes are degraded? In sooth we may, and though not the first who have raised our pen, we may succeed in raising an indignation in the public mind that will result in sweeping back the fearful tide of filth and corruption flooding in upon our people. This city, thank goodness, had been always comparatively free from time immemorial of the contaminating influences of a degraded literature, and a dishonoured art. Though her artists and literary men might be poor, their morality and honour were proof against criminal temptation for sake of gain. The breach that could not be effected, however, from within our shores, has been effected from without, and the art or literature that no native could be found to create, other natives are found to give countenance to and support. London, at this moment, and all her chief manufacturing towns, are deluged with publications of an immoral tendency—yea, a suggestively criminal one—and we regret to say that many of these filthy emanations, which are a disgrace to the glorious art of printing, are making way to this country. Is there no possible way by which this criminal, infamous, and often blasphemous class of publications can be stopped? So long as would-be philanthropists and namby-pamby moralists approach the subject with fear and trembling, with pen dipped in rose-water, so long will the evil last, and increase in enormity and boldness. To eradicate an evil we must get at the root of it, and extirpate it, branch and germ. Vermin must either be dug out or burned out, ova and embryo; and moral assassins, like murderous conspirators, ought to be treated similarly, by seizing the principal ringleaders by the neck, and giving them the guillotine or the rope. A short shrift and the death of a dog would be an honour too high for their deserts.

Judges upon the bench in London and police magistrates were often obliged to call attention to the obscenity of some of the publications of the nature we are alluding to; but so long as there is not a determined move made in the interest of the law to prosecute the conductors or publishers of these journals, the said conductors are only emboldened to give greater zest to the morbid appetites they have created. In fact, when these publications are brought prominently before the public in this way, their conductors look upon the action in the light of a capital advertisement, and proceed joyously in the manufacture of crime.

There is a class of illustrated journals in London which seems to defy the law in the manner and nature of their conduct. Their pictorial merits consist in thinly-veiled indecency and descriptive innuendo, which is easy of translation. With them art is debased to inflame the passions, and language is couched to mean unutterable things. Morality with them is a sham, purity a vacuum, and licentiousness the loftiest aspiration. When their devilish ingenuity is balked, the craft of the serpent drives them to slaver

over the nude creations of classic art in our public museums, and reproduce them with the filthy accessories that their prurient imaginations suggest. These penny and two-penny pictorial panderers to vitiated tastes know their game well, and play it with wonderful fertility of resource in the fields of filth.

We shall have no hesitation now in naming a class of publications that have overstepped the bounds between morality and vice. The proprietors of such publications as "The Day's Doings," "Day and Night," "The Police News," and others of a similar stamp, are, from the nature of many of their engravings, directly incentive to depravity and immorality. What boots it how excellent an engraving may be, or how finished a performance as a work of art, if its tendency is to undermine morals? Liberty of the Press does not mean licentiousness; and surely the scope or aim of art should not be to create a shrine at which the libertine and harlot might kneel to deify, ere the drawing to of the curtain veiled the besetting sin of their lives.

Almost every interest, bad and good, in England appears now to be represented by some sort of a journal or another, but, indeed, a large class of these are merely speculative ventures, which die after a mushroom existence. We have the *Matrimonial Advertiser*, intended as an organ of intercommunication between the "hard up" of the sexes who want to get married, or rob each other under the pretence of offers of marriage. Journals like these are mere literary swindles, got up as a swindle and carried on as one. There are dupes, to be sure,—silly men and maids,—who will advertise in such sham journals, and forward their *cartes de visite* to be grinned over in private by pot-house editors and their disreputable *confères* in imposture and deception. We are in the secret of how one of these matrimonial penny journals was started, and how beautifully the proposal for marriage was fabricated week after week before one *bona fide* advertisement came to hand from one love-stricken Lucy or lunatic Lorenzo. On the other hand, there were cunningly-worded announcements by knaves intending to catch fry, and the nets were so arranged the fry was always landed in the one direction, to the great glory of the organ of matrimonial swindledom.

Journalism of this stamp is a perfect nuisance, and the most that can be said in its favour is, that its conductors do not knock you down and rob you by force, like a highwayman or a garrotter, but they entrap their victims by special pretences, and share in their robbery, and heartlessly laugh over the "poor silly body's" ruin. A great many, indeed, of the penny illustrated journals of London are unfit to read; and though good information and knowledge are conveyed to their readers by some of them, unhappily too often the drift of the novels and romances published in them is dangerously immoral in conception and execution. Several of this class of publications are sold in this country, but we would conjure Irish fathers and mothers not to permit them to enter their homes or to be read by their children. Reformatories are the fittest place for the relegation of any of their children who are found reading them. Should the parents themselves happen to be the sinners, we are unable to suggest at this moment a fitting chastisement for their offence. It is not in mere journals of the light literature stamp that all the danger is to be apprehended, but in the three-volume novels of many of our respectable (?) circulating libraries. Some of these novels have perhaps been previously published in a weekly or monthly magazine, and have already corrupted the minds of hundreds, and in this, their second mission, they are fated to reach and debauch the minds of a much higher class of society than the last. We would not like to see an arbitrary censorship of the Press once more established in these kingdoms, for many reasons; but there is certainly required some supervision or restric-

tion on the publication of books or journals of a demoralizing nature.

While the Press proper possesses such unrestricted freedom as it does, why not exert its power in preserving that liberty from one day or other being destroyed? Why not denounce such publications as we are speaking of? or why not, as a step in the right direction, refuse to advertise them? The newspaper Press would find that eventually they would lose nothing, but would be real gainers, by this course of action. In doing this they would be faithfully fulfilling their mission as public advocates and instructors, and the really useful in literature, art and science would soon increase. The detective department of Scotland Yard, through their officers, has been making for the last five years periodical raids upon the filthy bookselling cribs of Holywell-street, London, where indecent prints, books, pamphlets, &c., of the most disgusting character are vended, and from which quarter innumerable obscene and unmentionable descriptions of literature are sent forth to all parts of the kingdom through the medium of the post. The trade of these vermin of literature, like the trade of medical quacks, is not only a public nuisance, but an abominable living scandal to the Government and the country. No punishment would be too severe to mete out to these utterly debased wretches, who promote, pay for, and publish such villanous and immoral publications. Fine and imprisonment overtake a few of them after a long career of systematic crime, and the punishment, the worst of which these filthy wretches receive, is altogether incommensurate with their crime. Not thus would our ancestors have acted. The vagabonds would have been tied to the cart's tail and lashed through the streets, followed by a howling multitude. Even at the present hour, our civilization would hardly be disgraced if we cropped the ears and branded the backs of these vagabonds with a hot iron, marking them as the "devil's own" in life, as they are not unlikely to be in death. Of a scarcely less criminal cast in type and general character are those unprincipled speculators in abnormal literature, who make the Holy Writ, religion, and religious institutions the groundwork of their sensational indecencies. If any religious institution has faults, honest public opinion and trustworthy inquiry will find it out and propose a remedy. Utter falsehood or wilfully exaggerated accounts can never effect reform. Scripture is travestied and parodied for amusement, and it is not improbable that the rage and morbid desire for religious amusement will reach its climax some day in London by the production of a "comic Bible," or a comic history and lives of the saints. As it is, we have "the Forbidden Book" advertised daily in the London newspapers, a compilation of apocryphal writings, with notes, not published in the interest of science, but got up and circulated by speculative knaves, who have tried every dodge conceivable in the realm of sensation, and who, like the Spaniard who knew how to work at fifty trades, yet starved with them all. Then we have "the New Mysteries of London," "Convent Mysteries," "Awful Disclosures," "Dark Doings," "Terrible Tortures," illustrative of conventual and monastic establishments—a *farrago* of trash, filth and falsehood, with a grain of truth here and there to spice the mass of lying. The itinerant publishers, stationers, and newsvendors who deal in this description of ware, as if ashamed of their trade, are always changing their *depôt*, and to deceive the public, one *alias* is periodically substituted for another. The firm still remains the same, though the agent may appear to be disconnected. Some newspaper proprietors account it "business"—aye, that's the word—to give advertising facility to those vile sensation-mongers, consequently the foul traffic is kept alive.

We have already instanced a periodical rag called the *Illustrated Police News*. This weekly serial has a large circulation in England, and we fear that it has many readers in Dublin, and elsewhere in Ireland also. The

horrid pictorial display in this broadsheet of all sorts of crime, brutality, murder, shooting, hanging, garrotting, stabbing, &c., is hideous to the sight, and is enough to make the flesh of the nervous and sensitive to creep, and their very blood to curdle. Unhappy artists and printers, who are forced to contribute, through exigency, to the "get up" of such an outrageous publication! It is offensive to the sight, and it is a caricature and libel on literature and art, pictorially and descriptive. It finds readers, however, in abundance; it is tolerated by the authorities, though it stinks in the nostrils of every decent member of society.

Devilish ingenuity would appear at times to have almost exhausted itself in London in devising means to appeal to the animal and brutal instincts of the demoralised. Nothing is deemed too high or sacred to defile or to turn to evil ends for the purpose of gain. Even the beautiful art of photography, which, by its judicious exercise, has afforded so much instruction and amusement to all, and which has been such an assistance to art in general, has been dragged into the mire, to the glorification of profligacy and the enthronement of gilded vice. The sublime and ennobling arts of painting and sculpture, and the finest creations of the artist's skill are made to minister to indecency through the aid of other misapplied arts in the hands of unprincipled practitioners. Vice succeeds vice, and crime out-Herods crime in atrocity and magnitude, and literature and art are dragged down in the gutter, and enlisted into the service of knaves incarnate, for the vilest purposes possible to be conceived.

Who will or can stem the torrent aside while our own rulers hesitate? The Press can do so to a great extent if it wills to do it. Public exposure, constant and unremitting, is one of the best courses for counteracting and crushing the evil. Legal action is at all times necessary, but the greater the exposure previously, the surer will be the verdict of the public on the punishment of the evil-doers.

When our newspapers are pure, and our journalism more upright and consistent, our publishers and printers will become more respectable, and booksellers who value their reputation will follow the good suit. The vendors of adulterated food and drink are punished by law, and in this they only get their desert. Are those who poison the mind and lead to the corruption of the soul less criminal than the former? Those who publish, print, and vend a corrupting literature are manufacturers and vendors of deadly poison, and their punishment should be condign. The strong arm of the law often reaches where it is less needed, and not unfrequently it crushes an innocent victim, whilst the veteran monster in crime escapes to renew again his malpractices on society. We want a public prosecutor—in fact it is one of our most urgent present wants. Such an individual is as necessary to our advanced state of society as any officer of public health, for the purification of public morals must proceed side by side with the progress of the public health. Literature and art must be saved from degradation, and the pollution of the public mind prevented by every available means governmental, municipal, and true journalistic wisdom can devise. When these precautions are taken, we may hope to see a death-blow given to the reign of Criminal Literature and Art in Great Britain and Ireland.

DUBLINIENSIS.

REBUILDING OF ST. AUGUSTINE'S CHURCH, DERRY.

THE memorial stone of the new Church of St. Augustine has been laid by the Lord Bishop of the diocese. It is being rebuilt, on the old foundations as far as practicable, from the designs of Mr. John G. Ferguson, and under his personal superintendence. The erection of Bishop Barnard was in the Classic style, rectangular on plan, and mea-

suring 74' x 21'. The style now adopted is thirteenth-century Gothic—the period of the early Augustinian Church. The new chapel will consist of a north 21' x 6' 6", abutting on the western façade, and a nave 60' x 21', with chancel extending to limit of former eastern gable. An organ transept breaks the outline of the north flank, and the robing-room abuts upon the south side of the chancel. The roofs will be open-timbered. The principals of main roof will divide the nave into four barges; these rest on arched ribs and corbels, and are spaced again by half principals, resting above side-lights. The slating will be varied with ornamental bandings, and the ridges surmounted with painted and gilt cresting. The chapel was remodelled internally a few years ago by the late "Ecclesiastical Commissioners." The fittings, &c., are excellent, and of suitable detail to harmonise with the architecture of the new building, in which they will be re-used. The chancel will contain a very handsome three-light window, with elaborate tracery in head. The nave will have two-light windows, cusped and pierced with quatrefoil openings in heads. The north, robing-room, and transept will have cusped lancets. The western façade will be pierced with a large wheel window, filled with cinque and quatrefoil lights, and will be surmounted by a well-proportioned bell-turret. The north is broken by a bold projecting doorway, deeply moulded and recessed. The shafts of the doorway, with those supporting ribs of chancel arch, and the eight shafts at the angles of bell-turret, will be of polished Donegal red granite, with cut stone bases and foliated capitals. The window-lights will be filled with lead sashes, having the quarries—except in those reserved for stained glass—filled with cathedral glass. The apices of bell-turret, transept, western doorway, and chancel will be surmounted with finials of mediæval design. The chancel floor will be laid with encaustic tiles. The woodwork, internally, will be stained and varnished. The walls, externally, will be faced with Creevagh stone; and the windows, doorways, tracery, mouldings, barges, and bell-turret will be of an excellent stone, supplied by Mr. P. Doherty from his Dungiven quarry. The old building-stones will be re-used in filling and backing the walls throughout, and considerable effect and variety will be gained in the dressings by using for all quoins a red sandstone, supposed to have been brought from quarries near Redcastle, on Lough Foyle, apparently of similar description to that used in the erection of the cathedral, the Walls, and the old churches of Enagh and Culmore, and which has been found in considerable quantity in the old building, and in an excellent state of preservation. Messrs. G. and R. Ferguson are the contractors. We may have occasion hereafter to say something further of this structure and the surroundings, from a personal visit, and of historic Derry in general.

TECHNICAL EDUCATION.

At the closing ceremonial of the Norwich Industrial Exhibition, the Earl of Kimberley gave expression to views which are at once sound and practical on the subject of Technical Education. We have already in this journal written at some length upon the matter, and the value it possesses for the craftsmen of the building trades in particular. We intend not to lose sight of this important topic in all its relations, and we will from time to time return to its discussion. In the meantime we transfer to our columns the gist of Earl Kimberley's address:—

In addressing the meeting, the Earl observed that when exhibitions of this kind were first commenced there were undue expectations as to the results that were to follow them, while now there was a kind of reaction, and a desire to depreciate their utility. When the first great International Exhibition took place in 1851, extravagant and unreasonable expectations were entertained that it was to inaugurate some new era of peace. He could not say that he had ever shared these expectations, because he

never could see why a collection of a large number of works of art or objects of utility, however interesting in themselves, could have any serious tendency to bring about a millennium of peace throughout the world. Those who took too sanguine a view of the effects of industrial exhibitions looked only at one side of human nature. They forgot that, although it was no doubt most important that trade should be encouraged, that manufactures should flourish, and that as much intercourse and peaceful competition as possible should take place between the different nations of the world, the preservation of peace depended, after all, upon a great variety of other causes, and that there was a moral side of human nature which was only very indirectly affected by industrial exhibitions. It was well that we should not forget that, however anxious we might be to promote peaceful rivalries such as the present, the era of universal peace had not yet arrived, and that we must be prepared to defend and preserve those advantages which as a nation we had so long enjoyed. He trusted that the country had recently given abundant evidence that it did remember this important fact—that we derived great advantages from our insular position, and he trusted that we should long continue to maintain an attitude of peaceful forbearance towards other countries. Still we must not shut our eyes to the fact that, during the present period of history, wars were at least as prevalent as they had been on former occasions, and it was just as necessary as ever that we should remember that war was one of those unfortunate and terrible events, which a nation must always take into its calculations. However, notwithstanding all these considerations, international exhibitions and smaller exhibitions such as the present were of very great use. It could not be otherwise than most useful to have an opportunity of comparing products and manufactures of other countries with those which we were most accustomed to see, and of disabusing ourselves of any notions which we might entertain of fancied superiority over others, and which were not based upon a correct knowledge of the actual facts. Industrial exhibitions had also encouraged considerable improvement in some of the most important manufactures of this country; for instance, no one who had seen the series of exhibitions which had taken place in London, and especially that which had just closed at Kensington, could deny that an enormous advance had been established in the art of pottery in this country. The remark also applied to glass manufactures. This improvement in the manufacture of pottery and glass showed that we might also by education and industry obtain greater excellence in other branches of useful art in which we did not now excel. There were some who lamented over an alleged decline of skill on the part of this country in competing with other nations, but for his part he did not believe in this alleged decline. He agreed with some excellent remarks made by Lord Derby—that we must look not only to our absolute, but to our relative, position; and that if we did not advance we should very soon find that we declined. At the same time he thought there was ample evidence that the artisans of the present day were able to hold their own in many of the productions which had made this country so great. It was well, however, that we should not shut our eyes to the fact that in other nations a great advance was taking place; and that, unless we advanced also, we should lose the superiority which we possessed in some branches of manufacturing industry. We must not only have the wealth of the capitalist and the skill of the master, but it was also absolutely necessary that there should be skill on the part of the workman, and it was this skill and knowledge which those present were met to recognise. This skill and knowledge must be obtained by general education, such as we were now furnishing to our population, and by special technical education where it could be placed within reach of the artisan. When we had provided general education and technical education we should have done all we could do to promote knowledge on the part of the artisan, and we must leave the rest to the industry and intelligence of the English people generally. With regard to trades unions, he was not one of those who looked with a jealous eye upon combinations of artisans to obtain a fair reward for their labour; and he thought Parliament had shown last session that it was perfectly ready to recognise any legitimate complaint on the part of artisans. What he was, however, most jealous of was any attempt on the part of trades unions to restrict and confine the skill of the workmen themselves. Such a policy was a suicidal one on the part of the workmen, and tended to lower the position of the country generally. In conclusion, the noble Earl expressed his approval of industrial exhibitions as tending to carry this country onward to still further triumphs in industry, art, and science.

SANITARY PROGRESS IN THE CITY AND PROVINCES.

SANITARY prosecutions in trivial cases go on in this city, but sanitary progress halts in its mission. Defiant holders of wretched tenements are noticed, but continue obdurate, and even contest in court the right of doing what they like with their own. A gentleman of this class, who owes a human piggery on the south side of our river, was summoned at the instance of the Public Health Committee to show cause why he did not abate a nuisance; but he considered that a brush of whitewash was sufficient for all sanitary purposes, and called a police officer to bear evidence to the fact that he did attend to the warning of the Public Health Committee. Dr. Mapother proved beyond doubt that the house was surcharged with fever poison, but the landlord persisted in saying his sty of tenement was the cleanest domicile in the street, and that he would or could do no more. We are glad that the magistrate thought otherwise, and made an order for 10s. per day and costs as long as the nuisance continued to exist. Now, without being severe on any particular individual, we consider all landlords of this description ought not to get the option of paying a fine, but be relegated to Bridewell if they fail in attending to proper notice.

The scavenging of the city still hangs fire, and the main drainage is one of our stand-still movements.

The gas supply of this city is very bad. It would appear that the Dublin Gas Company is taking a leaf out of the book of some of the English companies in the suburban quarters.

The Bray Town Commissioners have intimated their intention of borrowing £3,000 by mortgage on the township rates for the purpose of constructing additional sewers. This is one of the most needed works, we think, that Bray requires. There are other improvements connected with this marine watering-place proceeding.

Small-pox has not yet entirely disappeared from Wexford. Dr. Crean reports to the Wexford Board of Guardians the admission of three patients into the hospital.

Mullingar stands in a very bad condition in respect to sewerage, and the scavenging of the town is not at all attended to. It is rumoured that the troops will be withdrawn from the town. If this occurs, the trade of the place will suffer, and the penny-wise and pound-foolish policy of the Town Commissioners will have its unhappy result. Mullingar ought to be a very healthy locality from its elevated site. The state of the streets at times, or perhaps we ought say at all times, is neither conducive to the health of the population or to the usefulness of the Town Commissioners.

Kells is ruminating upon what it can do for itself after Dr. Halton's exposure of its dreadful and savage condition.

The sewerage of Portrush is bad, and the outfall of the sewage of the private dwellings into the main sewer, as at present in operation, reflects little credit upon the town. We do not marvel at cases of fever being reported.

Coleraine is in a far better state as regards the public health, though the sanitary condition of the town is far from perfect.

Nenagh has witnessed a scene on account of some nuisances being reported to exist behind the parish chapel. The local politicians had a sparring match, and rival candidates for town honours liberally showered a full spout of Celtic abuse on each other in the presence of the minister of the gospel. This is getting rid of nuisances on a new plan.

In Maryborough, the entire stock company of the Commissioners, according to the assertion of one of their number, are groping in the dark, not one of them having a single Act of Parliament in their possession to guide them. One of the officials was ordered to write to Dublin "for a couple of Acts of Parliament." When these Acts arrive in Maryborough we

hope that they will be found useful; but whether many of the officials of the board will be better informed than previously we will not promise. One fact is clear, that Maryborough needs a reform in many ways; her streets, footpaths, and sewers, are all in a bad state.

In Naas matters are not improving much. The County Surveyor has laid plans before the local board for new sewers, and intercepting old ones to prevent the pollution of Millbrook stream, at an estimated cost of £300. The Board of Guardians are building castles in the air, we fear, in respect of the Church Surplus Fund.

In the Athy Board of Guardians, the subject of the enclosure of Ballybracken churchyard was discussed, and some alleged bad wall construction was instanced, one member describing the mortar used as a sort of "artificial manure." The wall, in that case, may be expected to tumble over on the first real twitch of winter frost.

Summing up for the present, on the whole we may rejoice that much sanitary improvement is visible in our chief cities and towns, but it falls considerably below what it should be in view of the repeated warnings given, and the great facilities that exist at present for performing sanitary labour.

THE SHARPS THAT ONCE IN CITY HALL.

Air—"TARA'S HALL."

THE "Sharps" that once in City Hall
The life of rowdies led,
Are waxing old, both one and all,
And seem far better bred;
So turn old coats to sober grey;
So noisy tongues that swore;
And hearts that once rail'd loud 'gainst pay,
Will sing that song no more.
No more will anger rouse the clique
To cut each others throats;
For gentle words are best to speak
In face of ten-pound notes,
Thus red-hot Juntas make their pacts
A *quid pro quo* to give?
And thus we get *Main Drainage Acts*
To show that still they live.

CIVIS.

DEATH OF SIR THOMAS DEANE, ARCHITECT.

SINCE our last issue the death of Sir Thomas Deane has taken place in this city. The deceased architect was in his eightieth year. He was knighted, when sheriff of Cork, by the Duke of Northumberland, when on his viceregal visit to that city, in 1830. Sir Thomas Deane's father, the late Alexander Deane, Esq., was also an architect. Sir Thomas Deane's works are many, public and private, through Ireland; and on another occasion we may give an enumeration of them, with some fuller particulars of our much-regretted and much-respected native architect.

THE G. P. O. AFTER DARK.

We have had occasion recently to comment upon the alterations and disfigurements which have taken place at the General Post Office, to the injury of that fine structure. In the matter of requirement and accommodation, we have a right to demand on behalf of the public a little more deference than is usually paid to even well-grounded complaints. Will it be believed that the entire frontage of the building in Sackville-street, extending 223 feet, is only lighted up by four ordinary lamps, and for the entire length of the sides, extending a considerable distance down Prince's-street and Henry-street respectively, not one lamp is provided? Surely it is a shame that a governmental department of such comparative area, and occupying such a large extent of space in our principal and most prized thoroughfare, should be thus neglected. The new receivers under the portico have been opened, "gorgeously lettered" in red and black, but the sense of feeling has to be exerted at night to enable the public to grope out the proper slits, unless

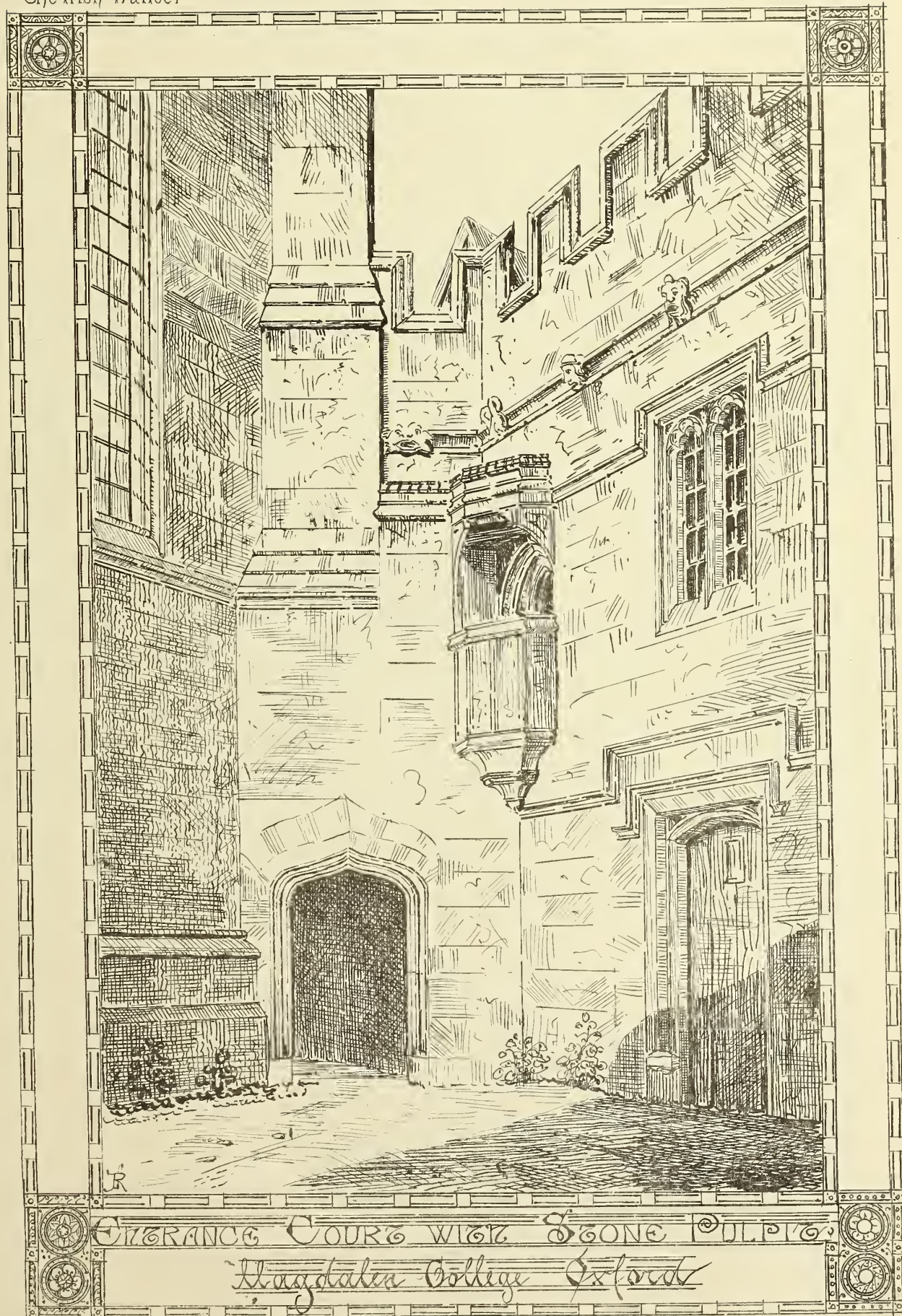
the autumnal moon is in one of her indulgent moods. The Post Office authorities should at once see to providing more light, not only in the vicinity of the receivers, but around the three sides of the building which are bounded by public thoroughfares. It is rumoured that the Government are in treaty for the purchase of Ball's Bank, in view, we suppose, of extending the postal departments on that side of the building. If that project is carried out, the obstructive railings, so much and justly complained of, would soon disappear. Surely this old-established and respectable firm of bankers could find, say in Sackville-street, premises suitable for their business.

ARCHITECTURAL AND ARCHÆOLOGICAL LITERATURE IN IRELAND.

WE transfer from the pages of our contemporary, the *Builder*, a most interesting, and, though brief, yet comprehensive paper on the above subject. It ought to set the minds of our Irish architects a-thinking, and awaken them to show a fuller appreciation for literature and dignity of their profession. They will perceive, on the perusal of this article, that even outside our own shores the spirit of historic research is animating generous intellects to devote their attention to a subject that ought to receive more attention at the hands of Irishmen themselves. The architectural literature of this country is indeed scant, though there has been no paucity of men of genius, or even of requisite materials, if diligently utilised. Can we not begin to do for ourselves what others are doing for us? or can we not assist those amongst us to do in our behalf the work they are inclined to do? There need be no jealousies engendered in forwarding the object which architects and engineers, as well as others, should have at heart. And, let the truth be spoken, we are indebted a great deal to the architectural ability of Englishmen by birth, though Irish architects by practice, for our old magnificent public buildings, which are "things of beauty" still, and we hope will be "a joy for ever."

The following article, even in the mere light of an index of reference, will be most useful and instructive, and we gladly copy it into the pages of the *IRISH BUILDER* :—

Ireland, though rich in archæological and antiquarian literature and writers, has made but poor progress during the nineteenth century in the literature of architecture. Her round towers have provoked more controversy than the authenticity of the letters of Junius or the poems of Ossian. Her yet living language is still exciting an interest which appears to be growing deeper, even outside her own shores, and for German philologists, as well as for British, it is an enticing and entrancing field of inquiry. Numerous and many-sided have been the works on Irish history published, and more numerous still are the materials of this history still existing in MSS. in British and Continental libraries, and scarcely less plentiful are those reported to be missing or lost. Englishmen, led by choice, accident, or public appointments to Ireland, have been many for some centuries back, and a fair quota of these have been irresistibly drawn to the study of Irish archæology, philology, and antiquarian matters. Yet in the superabundance of these inquirers, Saxon and Celtic, the progress or growth of an Irish literature of architecture proper has been small indeed. Very few Irish architects have shown any energy in aiding the study of their own profession, in the sense of contributing to the literature of its varied branches. Odd and



THE LIBRARY
OF THE
UNIVERSITY OF VIRGINIA

intermittent papers have been read in public institutions from time to time, interesting in their way, but these contributions go a very short way in the formation of a literature of architecture the emanation of Irish intellect.

Vallancy, though not a native, was a naturalised writer on Irish themes. He was a military engineer, originally of the army, but he became by location and association in Ireland, an archaeologist and antiquary, and even a philologist. His works were not of an architectural character, save so far as archaeology is connected with it. He wrote, however, a small work entitled "Field Engineering," and a Treatise on Stonecutting. Ledwich was a historian and antiquarian writer, and a native; Sylvester O'Halloran, Taffe, Leland, Beauford, Plowden, Baker, O'Connor, Keating, MacGeoghegan, Kelly, Moore, Curry, Lawless, O'Sullivan, and others, were historians. In more recent times we have another class of historical and antiquarian writers, whose works are very interesting, John O'Donovan, and Eugene O'Curry (the great Celtic scholar), Sir W. Betham (Ulster King-at-Arms), John D'Alton, the Rev. Caesar Otway, Sir William Wilde, Richard Brash, John Windele, J. R. O'Flanagan, Francis Wakeman, Roche, George Petrie, Graves, Todd, and some few others whose names do not immediately occur to our mind, but whose works are of a similar useful cast. All these latter writers, with a quota of other local historians, confined their labours to archaeological, historical, and antiquarian studies. None of them, that we are aware, were architects by profession, nor have they written on architecture proper, or in elucidation of Irish architecture, save in the descriptive manner of historians and antiquarian observers.

From the days of Giraldus Cambrensis, otherwise Gerald Barry, who accompanied Henry II. to Ireland, in the twelfth century, down to the days of Sir James Ware and his contemporaries, Irish history, language, manners, institutions, and ecclesiastical remains, formed the chief fields for study in Ireland. The Ogham character, the Ossianic tale, the Brehon edict, and the Round Tower mystery, and other cognate subjects, were taken up by turns, and formed a continuous body of writers, until the present hour. Architecture proper was left out in the cold as an uninviting subject. A few professional men, however, with others allied by tastes to architectural pursuits, look now and then to the subject. There is a manuscript work in the British Museum, by an Irish architect, John Aheron, entitled, "A General Treatise on Architecture, divided into Five Books." It consists of 176 folio pages, with this epigraph: "This work was written and drawn with pen and ink, and finished by the 13th of April, A.D. 1751, by John Aheron." The history of this writer is unknown. George Semple, an architect who flourished in Dublin between 1750 and 1780, wrote a work on "Building in water," and a Diary of his Re-building of Essex Bridge in that city. This book was illustrated with many copper plates. It was published in 1776, and is well known. James Murphy, an architect, wrote, on "The Principles of Gothic Architecture," a book in which he advanced some curious theories about the origin of the pointed arch. James Gandon, an Englishman by birth, but a celebrated Irish architect, during the Irish Parliamentary period in Dublin, wrote some papers on "The Progress of Architecture in Ireland." Francis Grose (the Captain), who published the Antiquities of England and Wales and Scotland, also commenced a work on the "Antiquities of Ireland," illustrated by his own sketches; but dying in Dublin in 1791, his work was continued by his nephew, Daniel Grose, and Edward Ledwich, the Irish historian. It may be mentioned here that James Gandon, the great Anglo-Irish architect, and Grose, were bosom friends, and they both sleep in the one grave in Drumcondra churchyard, near Dublin. Two works of an illustrated architectural nature appeared in Dublin in the latter end of the last century, entitled Malton's "Views of

Dublin;" the other, "Poole and Cash's Views." These two books had some letter-press, and the plates were well engraved. They are very scarce now. A description of "Gentleman's and Builder's Price-book," the first of its kind, we believe, printed in Ireland, was written by William Stitt, and published in Dublin early in the present century. Some of the old race of Irish builders were wont to calculate their estimates by this book down almost to the present day. A Dr. John Rutt, in a work published in Dublin in 1772, an "Essay towards a Natural History of Dublin," gives some very useful information on the building stone of that county, the different quarries, painting earths, minerals, and petrefactions. This old work will be found useful to Irish architects and builders, and others connected with the building profession even in the present day. John Morrison, an Irish architect, wrote a little on architectural and building matters in the latter part of the last century. His son, Sir Richard Morrison, contributed some papers to the literature of architecture; he also published a work early in his career entitled "Useful and Ornamental Designs in Architecture, &c.," prefixed to which was a narrative of the rise, progress, and extent of architecture; but we are not aware that the son of the latter, who was a good Tudor Gothic architect, contributed anything to the literature. The Morrisons for generations were architects. William Vitruvius Morrison, the younger member of the above family, died young, on his road to fame. Thomas Bell wrote a "Treatise on the Gothic Ecclesiastical Architecture of Ireland," for which he received a prize from the Royal Irish Academy. This work was more historical than technical. Henry O'Brien wrote an "Essay on the Origin of the Round Towers of Ireland," for which he received a prize from the same body. This work was an historical one also. George Petrie wrote a work also on "The Origin of the Round Towers of Ireland." He received a prize too. Neither Petrie nor O'Brien was a professional man; but Petrie was not ignorant of architectural details. He also wrote several antiquarian sketches for Irish journals, and a sketch of the Rise of the Fine Arts in Ireland. Henry O'Neill wrote on the "Ancient Crosses of Ireland."

The "Life of James Gandon, the Architect," written by the late T. J. Mulvany, R.H.A., appeared about 1846. It was an interesting volume as far as it went, but it was chiefly confined to an account of the architect's career in Ireland, and the public works on which he was engaged. Mulvany was an artist, and not an architect.

In the periodical literature of Ireland for the last eighty years, various minor writers have contributed on archaeological and antiquarian subjects.

William Beauford was acquainted with architectural detail as well as antiquarian subjects. He contributed papers on "The Civil, Military, and Ecclesiastical Architecture of Ireland," and on "The Theory of Columns," and on "Gothic Roofs" (their pitches), in the "Anthologia Hibernica," 1793-4. In the *Dublin Penny Journal* of 1832-6, the *Irish Penny Magazine* of 1832, and in the *Irish Penny Journal* of 1840-1, various antiquarian articles appeared, some from the pens of writers we have already mentioned, and others from unknown hands.

A schoolmaster, of the name of Armstrong, and Samuel McSkimmin, a local historian of Carrickfergus, contributed several interesting articles, of an antiquarian and historical character.

Neither Cooley nor Ivory, though good architects practising in Dublin in the latter part of the last century, contributed aught to the literature of architecture. Nor are we aware that Francis Johnston, who founded the Royal Hibernian Academy of Painting, Sculpture, and Architecture, ever contributed with his pen to the literature of his profession. He was an excellent architect, and many of his public buildings still attest thorough acquaintance with his art.

Of latter-day architects in Ireland during the last quarter of a century very little can be said in the way of literature,—the literature of their profession. With the exception of occasional papers read at their Institute, they publish little.

Some Dublin, Belfast, and South of Ireland architects have given proof that they could do useful work in this way; but whether it is from want of time or reluctance, or other causes, Irish architects in general of the present day are doing but little with the pen for their special guild. In our brief review of this subject we have omitted some names that might have been mentioned, but none that would materially change the aspect of the case.

A few words by way of finis. In a back volume of the *Builder*, some scattered notices of the lives of a few previously overlooked Irish and foreign architects and engineers of note will be found. Some of these notices might be summarised, and included in the new *Architectural Dictionary*. If they cannot be given in alphabetical order, owing to the advanced state of that work, they could be included in an appendix to the volume, with the particulars of other unnoticed architects, "waifs and strays" which may turn up before the completion of the work.

As we write, an announcement appears in a contemporary of a promised volume, "The Lives of Irish Architects," to comprise also foreign ones of note once practising in Ireland, with a sketch of the rise and progress of architecture in that island. Such a volume ought to be made as complete as possible, and the members of the profession in Ireland who may have materials or who may know in what quarters such may exist might do well in assisting such a publication.

THE MEMORIAL TO THE LATE EARL OF CARLISLE.

A MEMORIAL to the late Earl of Carlisle, Lord Lieutenant of Ireland, was inaugurated at Morpeth, on the 1st inst., by Earl Grey. The memorial consists of a bust in marble, by Mr. Foley, and of a present worth £200, consisting of a telescope, microscope, and a collection of scientific books. The bust—said to be a faithful likeness of the late earl's features and expression—has been placed on the staircase of the Town Hall. The memorial was subscribed for by the inhabitants of Morpeth and the neighbourhood. The connection of Earl Carlisle with the viceroyalty of Ireland and his public acts in this country, are of too recent occurrence to need any detail at our hands on the present occasion. As Lord Morpeth, or as Earl of Carlisle, he will be remembered for many years, as having played a most important part in the chequered history of this country.

THE MANCHESTER NEW ROYAL EXCHANGE.

MANCHESTER, which can boast of some fine public buildings, is still making additions to her architectural list. The first portion of the New Royal Exchange, consisting of nearly two-thirds of the whole intended structure, has just been finished, and is thrown open for the use of subscribers, the old Exchange being now closed. There was no opening ceremony. When completed the room will be the largest covered room in the world used for secular purposes, and in its present state it affords 70 per cent. more accommodation than the old Exchange. The old building was in the Doric style; the new one is in the Corinthian style, the principal features of the exterior being the octostyle portico of the main front towards Cross-street, and a large dome over the centre of the building. A lofty tower and spire will be built in the new portion, which has yet to be erected. The New Exchange, when entirely finished, will certainly form one of the chief architectural features of the Cotton Metropolis.

THE LATE AND NEXT INTERNATIONAL EXHIBITION.

THE International Exhibition at Kensington, which had been open since last May, was closed for this year on Saturday, the 30th of last month. It has, we believe, been a financial success; but otherwise it was productive of important benefits to Art and industry of all kinds. There can be no doubt but such periodical or annual exhibitions give a great impulse to study and invention, and are a great means of leading to and helping in the technical education of the workman.

Respecting next year, her Majesty's Commissioners announce a second series of exhibitions, to be opened on the 1st of May, 1872. There will be three divisions—firstly, the fine art, applied or not applied to works of utility; secondly, manufactures, varying every year for some years until the course is exhausted to be re-begun; thirdly, scientific inventions and discoveries. In the first division there will be always seven classes, namely, painting of all kinds, in oil, water-colors, distemper, wax, and enamel, and on glass, porcelain, mosaics, or other surface; sculpture, modelling, carving, and chasing in marble, stone, wood, terra-cotta metal, ivory, glass, precious stones, and any other materials; engraving, together with lithography and photography, if executed within the preceeding twelve months; architectural designs, drawings, photographs, and models; tapestries, carpets, embroideries, shawls, and lace, shown not as manufactures, but for the art of their design in form or colour; drawings for all kinds of decorative manufactures; and, lastly, reproduction, or exact copies, of ancient or mediæval pictures, painted before 1550, with electrotypes and other copies of old works of art. The second division will contain five classes of manufacture, subdivided and independent of raw material, machinery and processes in their production. This division or divisions will possess great interest. Cotton or cotton fabrics will play an important part; there will be no fewer than fifty-seven distinct cotton trades represented next year. Then we will have jewellery of all kinds, specimens of peasant jewellery from all parts of the world. Probably we will have articles of this kind from all parts of the world, including of course Irish bog-oak ornaments, and others, silver, gold, ornaments, diamonds, pyrites, indigenous to this country. If Ireland is to be represented in the next International Exhibition, there ought to be some little organization made in time, in all the divisions we instanced; Irish flax, linen, needle-work, lace, jewellery and flax machinery, could be well and worthily represented by the North of Ireland.

The following general conditions have been laid down for allowing supplementary courts or galleries to be erected on the vacant ground on the east and west sides of the Horticultural gardens.

"Galleries, constructed of brick or other combustible material, according to a design to be approved by her Majesty's Commissioners, may be erected on behalf of foreign exhibitors by their respective Governments upon payment of a nominal rental. Each Foreign Government may arrange to have an allotment of ground for such a supplementary gallery, proportionate to the space occupied by such Government in the select exhibition. These supplementary galleries are to be erected solely with the object of giving additional space to the exhibitors selected for admission into the annual International Exhibitions, and are only to be used for the display of objects corresponding with those prescribed for each year. Such supplementary galleries are only to be used by the respective commissions during the period of each annual International Exhibition, including the time required for the arrangement and removal of objects. At other periods they are to be at the disposal of her Majesty's Commissioners on terms to be arranged with each Government. The tenure of such galleries may be until after the Exhibition of 1880, but terminable by her Majesty's Commissioners after each year's exhibition upon a payment proportionate to the unexpired term of each lease. The supplementary galleries are to be kept in repair

to the satisfaction of her Majesty's Commissioners by the respective Governments. All other charges connected with the supplementary galleries are also to be defrayed by the several Governments. No object is to be removed from these galleries during the hours the Exhibition is open, and if objects are removed in the evening or early in the morning they must be replaced by similar objects before the Exhibition is again opened. Every foreign Government having a supplementary gallery shall comply with the regulations of her Majesty's Commissioners for the time being in force, in relation to the maintenance of the gallery and conduct of business therein. Any Government making default in complying with such regulations shall, if required so to do by notice under the seal of her Majesty's Commissioners, close such gallery until the default is remedied to the satisfaction of her Majesty's Commissioners; and, if the default be not remedied within a period to be fixed by her Majesty's Commissioners of not less than one month, her Majesty's Commissioners may either require the Government in default to remove their gallery, or may themselves purchase the gallery at a price to be agreed upon, or, in default of agreement, to be settled by arbitration."

We trust that Ireland, for her own credit sake, will be worthily represented in some of the divisions of the arts in the Exhibition of 1872.

CORRESPONDENCE.

THE DUBLIN MAIN DRAINAGE BILL.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Observing in your paper of the 1st inst. some remarks on the alterations made in this Bill, during its progress through Parliament, I beg to offer a plain statement of the facts.

The Bill, when brought before the Commons Committee, limited the rate to eight pence in the pound over the *entire drainage district*. This rate, if so levied, might have been found sufficient, by very good management, keeping within estimates, and by cutting down the expense of maintenance to the lowest possible point; but, on the evening of the first day in committee, the Corporation managers struck to their opponents all round. They agreed to take four pence instead of eight pence from the Townships; to exclude one-half of Pembroke, with a valuation of about £35,000, from the operation of the Act, and to execute new works, not previously contemplated, for the Port and Docks Board, the Canal Companies, Clontarf Township, and others. With this reduction of extra-municipal contribution, on the one hand, and increase of the cost of the works on the other, the eight-penny rate became insufficient, as a few figures will show:—

8d. on the City Valuation produces	£16,000 nett.
4d. on £120,000, Township Val.	2,000
	£18,000

But the bare repayment of interest and principal of the £350,000, first loan at 5 per cent., is £17,500, leaving £500 only for salaries, cost of pumping station, maintenance of works, contingencies, &c.

But it was necessary to prevent opposition in the Lords by appearing to keep to the eight-penny limit; the rating clause was accordingly ingeniously worded in this wise:—"The Corporation of *their own mere motion*" should not levy more than eight pence, but the "Liffey Act, 1870," being incorporated and quoted in the rating clause, the power given in that Act to the Government remained unaffected; so that if what the Corporation levied of their own motion was insufficient, the Government could go to the Queen's Bench for a mandamus, to supplement by other peoples' motion what was required.

It is probable that Lord Redesdale foresaw the working of this clause would involve the Government, year after year, in an odious litigation and controversy with the guardians (!) of the civic purse, accompanied by the usual memorials and deputations to London, and he therefore insisted on the clause being

altered, and made plainly and straightforwardly one for unlimited taxation. I trust you may consider this statement worthy of publication.

J. M'Evoy.

Dublin, Oct. 4, 1871.

[Mr. M'Evoy's statement is candid as far as it goes, but the question admits of a much wider discussion in the public interest. The action of the Corporation was no doubt "ingenious" but not *ingenuous*—but of that hereafter.—ED. I. B.]

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—For a long time past morality has been shocked by the indecent advertisements appearing in our daily papers by quacks on quackery, so much so that respectable heads of families find it difficult to get an untainted daily paper to lay on the domestic table, for the perusal of the members of their families. As one deeply interested in the matter, I was more than pleased to see the IRISH BUILDER building up the morals of the people by the very well-timed article which appeared on Medical Quacks, &c., in your issue of the 1st inst. But I felt most deeply pained when I saw in the columns of the *Architect* an article opposing you, and, for aught that I can see in it, feasting you to a piece of ridicule for allowing your columns to contain the article at all. Rather would I see you both join heart and hand to "hunt down" the nefarious system of wicked fraud and base lying, as it is a sort of building to be pulled down, no matter who the architect. And had the *Architect* transferred the whole of your article into his journal, he would have done more good for society than if he gave plans gratis for the erection of many costly buildings. Probably his article, though not intentional, will lead to the reading of that which drew it forth, and so do good. I wish the *Architect* to observe, that though he says "the list of the quacks of Dublin," &c., was supplied in your journal, it is not so; not one quack given in the list resides in Dublin; he can claim them all—not for this country. Your article says truly, "their head-quarters is London—they advertise in Dublin." The *Architect* says, sneeringly, that your article was addressed to the "Builders of Dublin." He is not aware that the IRISH BUILDER is received and read in many of the commercial houses in Dublin, and had he looked at the second last paragraph, he would see it was addressed to more than the builders. To set him right, I here quote the paragraph:—"Young men of respectable families, shun these advertising monsters in human shape if you value your peace of mind, and would not dare to dream of bringing shame and ruin on your homes."

The IRISH BUILDER knew that especially the builders were, as a class, very influential in society; that society had not put down as it should the advertising of quacks and quackery, and naturally appealed to the strength which lay within his power, not that the builders' morals were low, as the *Architect* would seem to think, but because they are high, and so the more likely to tumble down an edifice of vice, which, if quacks and quackery advertisements can be relied on, is growing alarmingly in our midst, and so the builders, not being susceptible of evil influence, may counteract its effects in others. The IRISH BUILDER, moreover, *pretends* nothing, but honestly reproves and exposes a vile lying traffic, and so guards the juveniles. Questions, silly in themselves, are mooted by the *Architect*—"pushed for copy"?—"magazine contribution"?—"increasing the number of subscribers"? &c. It is really unaccountable why the *Architect* discusses a subject so akin to its own practice, or why it should think fit to fill a half-page on a subject entirely outside its scope; or is one to wonder at the objectionable advertisements you so justly condemn, when we see the *Architect* angry that quacks and quackery have been so effectually exposed by the IRISH BUILDER? It is remarkable that many abuses which existed, and were

exposed in the *IRISH BUILDER*, have been entirely removed, and seeing that your journal exercised so powerful an influence on things that were, it should feel encouraged to pull down abuses that are. The *Lancet* and *Medical Press* have done their work well, as the *Architect* properly acknowledges, and there is no reason why they should not be helped on their way by a journal as much opposed to what is wrong as they are, though its title be the *IRISH BUILDER*, and as a sanitary periodical quite within its range.

In the *Architect*, in the article which takes you to task, the evil you complain of is characterised as "a monster as pestilent as any romancer ever conceived," and allusion is made to its "abnoxious advertisements which deface many journals;" "Charlatans who thrive upon the vices of the community," "base uses," "offending journals," "pernicious system," &c., and, in winding up, calls it "this basest sort of rascality;" yet, after all, he cannot comprehend an article on such a subject, but would rather consign it to the waste-paper basket. I beg, Sir, to thank him for his own article, much stronger than yours, though with much less conclusive reasoning, and in his moment of conceived triumph he unwittingly raises the honourable professions of architect, of builder, of engineer, to the low status of kindred trades. He has, you see, Mr. Editor, done well so far, which causes me to hope his next article will be better, and free from "the degradation of journalism to base uses by unworthy members of an honourable profession," as bordering on the vulgar, and certainly not courteous. Apologising for the occupation of so much space, I am, &c.

Oct. 7, 1871.

A. G.

[The injudicious observations on our own article by our contemporary, the *Architect*, will probably receive its fitting answer in our next, if it has not really received it in our present issue. Our contemporary, we hope, will not feel offended when we tell the public how the wind blows in its direction, and what are the direct influences that led to the penning of its remarks.—Ed. I. B.]

DRAWING THE FIRST BLOOD.

TO THE PUBLISHER OF THE IRISH BUILDER.

SIR,—My client, F. Sylvester, Esq., of Willesden, has directed my attention to an article in your publication of October 1st, in which his name appears as a "medical quack," in a paper entitled "Medical Quacks; their Dupes and Newspaper Supporters." I have to inform you that the statement respecting my client in said article is false and defamatory, and beyond all doubt seriously libellous. I am instructed to demand of you at once an ample written apology, and that you will also, in your next issue, give such public retraction to your statements as will fully satisfy my client, who is inclined to believe his name may have been inserted through mistake for some other.

If you decline to accede to this request, I will be obliged to proceed against you in vindication of my client's character and professional reputation.—I am, sir, your obedient servant,

PONTIFEX LEWIS.

Moorgate Chambers, London,

October 7, 1871.

[Is the above letter, we wonder, a hoax or a reality—if the latter, it will have at once its fitting answer. It would be a consolation to know that we succeeded in unearthing at last one pseudo-clerical rascal from his suburban retreat in Middlesex. An apology, forsooth—an apology for what?—for scotching one slimy and unclean thing, who, under the garb of religion and humanity, has been fattening for years upon the hidden social ulcers of society. We have to inform Mr. or Rev., or F. Sylvester, Esq., or whatever other *alias* he may choose to designate himself, that we will neither apologise nor retract

for one scintilla of our words; and that, though we hail from Ireland, we are wide awake to the plunder carried on by himself and his comrogués in quackery. There is no vindication needed for a "professional reputation" sunk beyond all human remedy—a reputation and a trade that must stink in the nostrils of all decent society, and a scandal to civilization, journalism, and the law that allows it to exist in our midst. If this will be sufficient apology for F. Sylvester, Esq., he is most welcome to it.—Ed. I. B.]

N.B.—Since the above was written, we perceive by a London contemporary that the real curate of Willesden has written to the papers that there is no such personage known in that town. It appears that the nefarious quack calls twice a week at the post-office for his letters, and sports a carriage and pair in the performance of his calls. If there was such a thing as a Vigilance Committee in Willesden, Lynch law might be expected in the absence of the local and governmental neglects which permit such vagabonds to vegetate. Can confiding folly and semi-religious swindling go much further?

THE BELFAST SCHOOL OF ART.

At the annual meeting of the donors and subscribers to the Government School of Art, held in the Institution, College-square, North, the secretary (Mr. Shepherd) read the report of the board of managers, which is as follows:—

"The Board of Managers have much pleasure in presenting their first annual report and statement of accounts, made up to the 15th September, with the head master's report on the internal working of the school.

The statement of accounts shows an outlay of £816 11s. 4d. in the necessary alterations and fittings of the building formerly used as a School of Design. The general expenses, amounting to £384 7s. 2d., though heavy, were occasioned by the necessary outlay incident to the opening of the school. There is a balance of £372 2s. 8d. still to debit. Apparent surplus in treasurer's hands, referred to in the 'abstract of income and expenditure,' consisting chiefly of fees collected for current quarter, will fall to be disbursed to the masters immediately. The accounts have been audited by Mr. William Hartley, public accountant, Waring-street, Belfast.

The School of Art, which was formally opened on 17th October, 1870, has already attained a degree of success very gratifying to all its founders and friends. Upwards of 440 pupils have availed themselves of the great advantage which it has placed within their reach; and it is pleasing to record that their progress has been such as to fully satisfy the board and the authorities at Kensington. Though only a few months in operation, there were sent in by the various classes, on 9th April last, more than 1,500 works to the national competition in London. Particular reference to this is made in the head master's statement. A detailed list of the successes of the pupils in this competition, and also in the examinations of May 1st and 2nd last, will be printed in the report.

The school has been fitted up in the most complete manner consistent with due economy, and everything has been done to render the Institution worthy of so important a centre of industry and enterprise as Belfast.

The Art Library is also in working order, and, with the valuable works on art lent by the Department of Science and Art, this adjunct in helping forward the aims and objects of the school cannot be too highly estimated.

The board sincerely hope that ere long the good which they anticipate must flow from so important an undertaking will be felt in every branch of industry in Ulster.

The art of practical design in ornament is carefully taught, and it is expected that, in time, not a few skilful designs will be produced.

To stimulate and encourage the pupils, and, if possible, to induce a larger attendance, the board have instituted a special local prize fund, apart from the ordinary revenues of the school. It is intended to give, at Christmas next, the sum of £65 in prizes for original designs of various kinds. This large amount, it should be observed, is independent of, and additional to, the awards bestowed

by the Department of Science and Art. A list of the prizes and conditions of competition will be found appended to this report.

With reference to the revenues of the school, the board should state that the department has, on certain conditions, granted the sum of £300 for the purpose of discharging the liability incurred in reconstructing and refitting the building. This sum they are now taking steps to procure.

The board would take this opportunity of thanking the donors and subscribers—a list of whom will be found at the close of this report—for their generous aid. Thanks are also especially due to William Dunville, Esq., J.P., for his munificent annual subscription of £100, which is chiefly intended to pay the rent of the school. They trust that many additional supporters will come forward to strengthen their hands and enable them to extend their operations more and more. It is most desirable that a fund for local scholarships and exhibitions, and for the purchase of works of art, should as soon as possible be created. They would also tender their thanks to the President of Queen's College, Belfast, for his prompt acquiescence on the request of the board for the use of the available casts deposited in the college.

Donors of £10 and upwards, and subscribers of £1 and upwards, are now called upon to exercise their rights and privileges for the first time, at the meeting of September 25, proximo, on which occasion the ten members of the board first on the list retire, but are eligible for re-election. The following is the list of those who retire:—John S. Brown, vice-chairman; John Carlisle, M.A.; Victor Coates, James Combe, J.P., chairman; W. D. Cramp, William Dobbin, R. G. Dunville, F. D. Finlay, Thomas Fitzpatrick, Vere Foster, vice-chairman.

The board would further remark that though by the removal to Edinburgh of Professor Wyville Thomson, F.R.S., their first chairman, they have lost the immediate services of one of the most active originators of their revised School of Art, they will still have, in his capacity as a member of the board, his counsel and assistance in all that pertains to the prosperity of the Institution. James Combe, Esq., J.P., was elected in his place."

From the head master's (Mr. Lindsay) first report we learn that the attendance throughout the year was very considerable, 147 students having joined the various classes. Considering the very short time the school has been in operation, the master thinks the results are most satisfactory. He says:—

"I have some hesitation in placing our results in juxtaposition with those of other schools, but it is only by such comparisons that our place among such institutions can be estimated. I find, then, that Sheffield, the second provincial school of the three kingdoms, according to its last report, sent up for twelve months 2,669 works, while we, for about half that term, presented 1,500 by the artisan class alone; besides which there were nearly as many more, the work of the pupils of the day classes. With respect to the second grade examinations, upon referring to the last official report (1871), I find that only three provincial schools received a greater number of awards—viz., Birmingham, with 1,007 students, gained 219 awards; Glasgow, with 1,003 students, 139 awards; and Bristol, 134 awards; while Belfast has secured 132, which includes the high proportion of twenty-nine prizes. In that class of studies, grouped by the Government in its science department, as building construction, and machine drawing, we have also been fortunate, nine out of the twelve students who sat having been successful. With respect to the examinations I have spoken of, the same sets of papers are used for all students, so as to have a uniformity of test; the trial, however, is not competitive. In addition to these tests of one to four hours each, the best works of the advanced students, upon which have been bestowed much time and attention, are sent to London in April to compete for prizes. Short as the time had been for the training requisite to qualify pupils to enter upon this competition, it is most gratifying to find that their diligence and ability have secured for them eleven third grade prizes, and a bronze medal has also been taken for designs."

The master acknowledges his indebtedness to the promoters of the local prizes, which, he thinks, is already exerting a great deal of influence in giving specific direction to the studies of the pupils. The Science and Art Department assisted the Belfast school with a number of works, etchings, photographs, &c. The head master supplements his report with an appendix, in which he enters at some length into the nature and study of Art, and concludes as follows:—

"The superficial instruction which is so often blandly insinuated is all that certain pupils require, and which is tacitly implied in the suggestions often tendered to us, would lead in the end to signal failure as regards the individuals so taught, and to extensive demoralisation in the spirit, and degradation of the office of the school. Whether drawing, as taught in our school, is acquired for directly practical purposes—as for designing, or as the preliminary training for really high art—or even to enable the student to preserve a record of a holiday tour in a well-filled sketch-book, we must equally aim at accuracy, facility and a reasonable confidence in the faithfulness of our work; and this in either case can be the outcome only of much study, with well-regulated practice. The parents and friends of students might give them and us very sensible aid by discouraging all impatience of thorough training. Much of the difficulty now experienced in this respect will be materially abated when drawing is properly taught in all schools; and I would venture to suggest to parents that, whenever drawing is so taught at the school their children attend, they should insist upon their learning, quite irrespective of their liking or disliking it, and of any presumption of a special talent for it, which is as often fanciful as real. Again, too much of pictorial effort is expected, and teachers, frequently caring more for their own credit than the pupil's advantage, are obliged themselves to make bad work presentable. What is the result? Of the thousands of pupils who carry home framed evidences of such school work, few are able to continue that work alone, or even to draw a stroke fairly suggestive of any line in nature.

Having deprecated the idea that students can produce anything of permanent worth, except as the result of long and patient application, it would be absurd to promise for the whole school what I deny to the individuals comprising it. It cannot produce any immediate effect on the manufacturing skill or taste of Belfast, but every student who acquires just ideas of what is sound and what is vile in art—and here the ladies and gentlemen attending our day classes will take no unimportant part—will certainly, even though silently, make such knowledge and taste effectual in circles of constantly-increasing radius. Then the artisans will take to their workshops their newly-acquired skill and knowledge, and awaken an emulous spirit among their fellow-workmen; and there is no reason why their suggestions, so often utilised in mechanical adaptations, should not in time include others on matters of taste.

Our school offers the strongest inducements to all classes of industrial students, and the course of instruction we pursue is peculiarly adapted to their education. Without a doubt, the artisan is destined to play a prominent part in our future social economy, but he must be prepared to accomplish it, not by hands, but by intellect; not by numbers, but by individual influence."

The chairman (James Combe, Esq., J.P.) said he considered the reports of the secretary and head master very satisfactory; and Sir Chas. Lanyon, who takes very great interest in all that appertains to Art in Belfast or elsewhere, moved that the reports be received, adopted, and printed for circulation.

We agree with the suggestion of Sir Chas. Lanyon, and we consider with him that it is most essential—not only to the prosperity of the school, but productive of general good to Belfast—to establish local prizes in connection with the staple trade of the neighbourhood. The head master suggested in his report, too, the establishment of local museums for the exhibition of all classes of Art, and local prizes. The Belfast School of Art cannot but be productive of important benefit to the town in course of time, for it will spread abroad among the artisans the technical knowledge they most require in the prosecution of their several crafts. A knowledge of architectural, engineering, and mechanical drawing is all important to the operatives of the building trades: in fact, it is important and useful for every workman and workwoman to know it. Art is a delightful accomplishment for all, and more essential to our worldly wants than music, however well it may be understood or wittingly rendered.

GOOD NEWS FOR DUBLIN QUACKS.

Rouse ye up, ye corn-cutters, tooth-stoppers, herbalists, druggists' assistants, oil and colour men, flying stationers, Grub-street authors, beer-barrel preachers, and organ-blowers—rouse ye up, there is money bid for you, and diplomas in abundance may be had

without the trouble of a grinding or nasty examination. Open your eyes and read, and bless the *London Daily Telegraph*, "*Medicus*," Janin and Co., for announcing by public advertisement the following good news:—

DEGREES, MEDICAL, &c.—Doctors, Botanists, Chiropodists, Dentists, Preachers, Lecturers, Authors, Musicians, &c., desirous of obtaining Diplomas from Foreign Universities, may obtain the requisite information by addressing *Medicus*, care of Janin and Co., 6 Exeter-street, Strand.

An herb-doctor of historic repute in Dublin several years ago was in the habit of covering the dead walls of the city and the hoardings around new buildings with his handbills. Like Moses and Co., Hyam, and Arthur Lynes, our herb-doctor kept a "pote." The bard's rhyme gave a great charm to the handbills, and, no doubt, if it did not improve the character of the medicine, it in no wise injured it. The herb-doctor's bard, in fine poetical doggerel, told the public:—

"There is no disease but has a cure
From herbs extracted, which are safe and sure.
Though minerals they do sometime save,
More often hurries thousands to their grave."

The herb-doctor, if he were now alive, might obtain his diploma from the University of Giessen, Potsdam, Amsterdam, or some other dam, which, no doubt, would be more valuable in the eyes of the vulgar than a certificate from the dispensary doctors of Ballyragget, or Ballyjamesduff. What is the Royal College of Surgeons about, or the Police Commissioners? Is it necessary for some honest man to make a martyr of himself by making a + with a lump of red chalk on the hall doors of these medical quacks with foreign, forged, or borrowed diplomas? A rod is in pickle, however, in this journal for these impostors, and they will get their deserts in good time. The public morals and the public health must suffer while empiries are allowed to exist in our midst.

A NOTE ON DISINFECTANTS.

THE properties, power and value of serviceable disinfectants, at the present hour, is a subject of much importance. Disinfectants are numerous—as numerous in name as "patent medicines"—and but very few of them are of any essential service for the purpose for which they are recommended. The more generally known disinfectants we need hardly enumerate, for almost every person, whether they know or not, assume that they know what they are and what they can effect. As to how they operate is another question, and under what conditions they are more or less effective, is not so well understood. As a sanitary organ to some extent, it is our duty to place before our readers every information that can help in preserving the public health, no matter through what channel it may come. Acting in accordance to this spirit, we transfer from the columns of our professional contemporary, the *Medical Press and Circular*, the following observations on "Disinfection":—

"Experiments have been made by Prof. Hoppe-Seyler, and Dr. N. Zapolsky, which are related in the *Med.-Chem. Unters.*, 1871, pp. 557-581. The action of carbolic acid on albuminous matters and on ferments being investigated, it was found that the acid precipitates albuminous liquids only when they are neutral, or nearly so, and the acid is in almost saturated aqueous solution. Neither the formation of hydrocyanic acid from the fermentation of bitter almonds, nor the generation of oil of mustard, nor the conversion of starch into dextrine and sugar by diastase or saliva, is prevented by carbolic acid. The solution of fibrine by the gastric juice was prevented, but only in presence of a large quantity of acid. The ferments operated upon were such as are formed of chemical insoluble substances. Pasteur's views are not admitted. The serum of pus, filtered and perfectly clear, and hydrocele fluid, were placed in tubes hermetically sealed; others were loosely corked; they were exposed to varying temperatures for various periods of time. They underwent putrefaction, whether living organisms were present or not; the rapidity of the process was solely dependent on temperature. One fluid was corked at a temperature of 68° F., another put in a hermetically sealed tube at 108°. After a time, the former swarmed with monads and vibri-

ones, but had undergone much less putrefaction than the latter, in which no signs of life or organisation could be detected. On adding carbolic acid to a putrefying albuminous solution, life ceases when 1½ per cent. of acid has been added, with as much as 1 per cent. of the acid putrefaction goes on. It seems that the acid acts much in the same way as heat, and that coagulation is necessary to arrest fermentation. Cholestrine disappears in putrefying solutions, so that, instead of being a product of the splitting up of albumen by fermentative changes, it is more probably a product of oxidation. From these researches, it would seem that, in any attempt to disinfect, we should not only destroy the living organisms, but the ferment itself, which Hoppe-Seyler and Zapolsky think much more difficult. To remove the offensive gases set free in putrefaction, has no more effect than to get rid of carbolic acid in alcoholic fermentation. It is conjectured that disinfectants act by precipitating ferments. Sulphurous acid is recommended as the most powerful disinfectant. Half a drachm or a drachm of sulphur, burned in every 100 cubic feet of space to be purified, will set free 1 or 2 per cent. of the gas in a room, and none of the organisms can grow in such an atmosphere."

We may add, that the above information will not only be found useful to members of the medical profession, but that the knowledge is of a description which ought to be acquired by all officers connected with corporate or local boards in the character of sanitary inspectors or inspectors of nuisances, and even by every intelligent householder and tenant in hamlet and city. Cleanliness, home and personal, rigidly adhered to, or rigidly enforced, will, however, render the use of disinfectants less necessary. Pure air, water, pure wholesome food, though frugal the fare, and abstention from all degrading vices, will not only make the sexes more manly and womanly, but will ensure a well-established public health and all its attendant blessings.

BOOKS RECEIVED.

Spiritualism and Animal Magnetism. By Professor G. G. Zerffi, Ph. Dr., Lecturer on the History of Art at the Government School of Science and Art, South Kensington; the Birkbeck Literary and Scientific Institution, &c. London: Robert Hardwicke, 192 Piccadilly.

At the outset of our remarks we may state that Professor Zerffi's work is one of the most interesting, instructive, and suggestive works of the kind we have ever read. The subject of spiritualism is treated both in a scientific and philosophic spirit. Assertions are weighed, and facts are grappled with and thoroughly explained. The theory of dreams, second sight, somnambulism, magnetic sleep, spiritual manifestations, hallucinations, and spectral visions, have often been treated of hitherto, but not in the manner they come in for treatment in this work. Nothing is taken for granted, mere faith is ignored outside religion, and spiritual manifestations, so-called, are subjected to crucial tests. We cannot do better, for the purpose of giving the reader an idea of the nature of the work, than to give the following points:—"1. That all phenomena, whether in the spiritual or material world, must be the mere effect of some causes. 2. That we have an organ in us which can act on the perceptive faculties of the brain from within. 3. That this is the organ of dreams. That dreams may be classed as follows: *a*, dreams without meaning; *b*, half dreams; *c*, theorematism dreams; *d*, allegorical dreams; *e*, somnambulant dreams; *f*, clairvoyant dreams; *g*, visionary dreams. 4. That the organ of dreams has its seat in the ganglionic system of nerves. 5. That this organ may be acted upon from without. 6. That amongst the many forces which may act upon this organ, the most effective is animal magnetism. 7. That our cerebral faculties may be lowered, and the faculty of our ganglia heightened. 8. That there can be no such phenomena as spiritual manifestations, from an objective point of view, but that they are all subjective. 9. That spectral visions are the products of the disturbed balance between positive and negative

magnetism. 10. That persons, in whom the negative magnetism is predominant, see, hear, smell, feel, taste, and even think, whatever an individual charged with positive magnetism wills. (See explanation of Frontispiece in book, p. 145.) 11. That in striving to make ourselves thoroughly acquainted with animal magnetism and its working, not only from a physiological, but also psychological point of view, we should bring our own, as well as the mental faculties of others, under a proper control, and be freed from all morbid belief in supernatural agencies. 12. That there is not a single accredited ghost story, spectral vision, or spiritual manifestation, that could not be explained from a natural point of view. 13. That from an ethical point of view, the belief in spiritualistic manifestations is most dangerous. The immutable principles of the laws of nature are thus based from the beginning on a flagrant falsehood. Visionaries and fanatics are generally hypocrites, untruthful deceivers, and addicted to all those little tricks, pious frauds, and metaphysical tergiversations, which have their origin in a morbid condition of mind, which prevents the recognition of a moral law in our very organization. 14. That the trade in spiritualism should be stopped by law, as it is a crime against society, demanding as much repression as the trade in fortune-telling, for one credulity deserves as much support as another."

The professor, in his work, advances a bold hypothesis to explain the nature and causes of somnambulism and the action of magnetic influence, based on the laws of polarization. Animal magnetism is as yet very little understood, and it has not received that attention which it deserves. It has been, since the days of Anthony Mesmer, altogether completely in the hands of empirics, who have utilised it for the purposes of deception, pious imposture, so-called spiritual manifestations, and other similar and mischievous uses.

Mr. Home, and his very select group of admirers, female disciples, and henchmen, have given us "seances" and manifestations, to be sure; and if we admit for the moment that "the dead arose and appeared to many" in a spiritualistic sense, does Mr. Home and his medium wish us to believe there is no explanation to be offered save the one his followers advance? We would advise Mr. Home, Mrs. Guppy, and Miss Cook to read Professor Zerffi's little work, if reason has an abiding place in their minds. If one cannot subscribe to the whole of what the worthy professor advances, they are at least wonderfully struck with the force of his reasoning, and the clear and unambiguous language in which it is expressed. We firmly believe if this little work were circulated and read extensively in Ireland, that we should have fewer ghost stories, apparitions, &c.; but our lower classes need to be educated to a higher standard before they can appreciate the drift or merit of such a work.

This book on Animal Magnetism must make converts wherever it is read. It is as deeply interesting to read as the most exciting novel of the day; but its true charm consists in its simple yet masterly power of riveting the attention, and of deeply impressing the reader's mind, almost in spite of himself, to acknowledge what is here written must be true.

Independent of the subjects treated in this little volume, much general information may be gleaned. We are thorough believers in science and its power. We ask for the proofs, if proofs are among the possibilities of the case. Charlatanism we hate, and would scourge out of the public arena wherever we meet with it. In conclusion, we thoroughly agree with Professor Zerffi that the trade of spiritualism, so called, should be stopped with the strong arm of the law; and spiritual lunatics and their followers, who are unwilling to understand natural laws and their working in this universe of ours, ought to be brought to sober reason by the criminal laws of the realm.

Self Instruction in Irish. Dublin: John O'Daly, 9 Angelsea-street.

WE have received a copy of this excellent little Manual, the work of a worthy Irishman, and an unpretentious but able Celtic scholar. It is a new and much improved edition, but we must defer until our next issue the notice that it deserves at our hands.

THE EDUCATION AND ELEVATION OF THE WORKMAN.

WE give here the concluding portion of Sir John Pakington's excellent inaugural address at the opening of the Social Science Congress at Leeds. After touching upon, at a great length, education in most of its bearings, primary and technical, the President of the Association wound up as follows:—

What, then, are the principal requirements now felt and urged by working men? I have already referred to their great need of technical education, and this, if we value the prosperity of England, must be given, and on fair terms; but the object which stands at the head of their requirements is—"To rescue the families of workmen from the dismal lanes, crowded alleys, and unwholesome dwellings of our towns, and plant them out in the clear." Another of the requirements to which they attach importance is one which seems at first sight to be almost a matter of course in every locality—viz., an adequate supply of good food at fair cost. Now, are these demands for healthy homes at fair rents, and wholesome food at fair cost, reasonable or unreasonable? What is the present position of the English artisan in these respects in many of our most important seats of industry? Is it not that he is destitute of that training which is essential to successful skilled labour—that his home is of the meanest and most comfortless class, but for which he is obliged to pay an extravagant rent—and that his food is of inferior quality, but of excessive price? I do not wish to draw any too highly-coloured picture, but I ask again, are these things true? If they are, even though with trade extensive and wages high, our labouring class may be in a certain sense prosperous, do not expect them to be loyal and contented; with no proper training within his head, and no decent roof above it, the British artisan is not as he ought to be. This question of the workman's home is a very serious one. It involves not only the discomfort and discontent of the parent, but the physical and intellectual inferiority of the child. I have lately read the following statement with regard to the two great cities of Edinburgh and Glasgow:—"As to dwellings alone, how suggestive are the statistics of large cities. For example, in the better parts of Glasgow, the inhabitants only average 34 per acre, and in those parts the annual death-rate is 5 per 1000. In the squalid parts (not the worst) the average is 328 persons per acre, and the death-rate 34 per 1000—that is, 29 persons per 1000 die annually from mere difference of habitation. In Edinburgh the death-rate in the worst parts is 60 per 1000—that is, 55 per 1000 die in consequence of their poverty. How much disease, temptation, insanity, and crime are here involved in addition to the deaths?" My authority for these startling figures is a paper published at Glasgow, by the Rev. Mr. Kirk, in the *Christian News*, and even if correct, I do not mean to say that they are of general application. But it is too certain that in and around many of our great centres of population and industry the home of the workman is not consistent with his comfort or contentment, and that the moral and physical effects of such discomfort and discontent are worthy of serious consideration. With respect to the supply of wholesome food at fair price—a supply indispensable alike for the labour of the parent and the growth and well-doing of the child—I fear it is too true that the workman often finds himself suffering under great and irritating disadvantages. It is, therefore, not unnatural, in these days of increased intercourse and information, that the man who is smarting under such disadvantages should look abroad, and compare his own position with that of his fellow-labourer in other lands. He will probably only look to the facts on the surface, and I fear such comparisons will not tend to soothe his discontent. If he turns to Switzerland he will find that, to a great extent, the skilled workmen, and even the factory labourers, mingle with and are part of the independent peasantry of the country, and he may feel with some justice that those who established free trade forgot that it was due to those who were called upon to embark in open competition to enable them to do so on equal terms. He will feel that a

Spitalfields weaver, paying a rent for his hovel of 5s. per week, and a Lake Zurich weaver, sitting rent free in the middle of his homestead—with house and food around him—can hardly be said to be fighting fair. Nor is this all. The state of village and town education in Switzerland is such that the workman's children receive an education that fits them for practical life, and those meant to be skilled workmen get drawing, geometry, physics, mechanics, taught at a cost nearly nominal, and which, in case of need, becomes gratuitous. This description applies equally, or almost equally, to the valley of the Rhine and other parts of Germany. But such comparisons ought rather to stimulate our government than to depress our people. Let the English workman bear in mind that as regards Germany and Switzerland, when compared with England, the social, political, and physical differences between the countries are such as to make fair comparison almost impossible. Let him bear in mind the points, and they are not a few, in which his position is as superior to that of the Swiss as in others the Swiss is superior to him. Let him reflect on the advantage, which, beyond almost every people in Europe he possesses, in the vigour, the energy, and the aptitude of his national character, and, above all, let him remember that it is in the power of the government and parliament of his country to remove, or at least to modify, those disadvantages by which he feels himself over-weighted in the great race of competition.

In Mr. Samuelson's report to the Government on the rapid progress of the manufacturing establishments of France, Switzerland, Germany, and Belgium, he says—"Meanwhile, we know that our manufacturing artisans are imperfectly taught, and our agricultural labourers illiterate—neither one nor the other can put forth with effect the splendid qualities with which Providence has endowed our people." This is confirmation, and from a very competent quarter, of Mr. Mundella's opinion that, with proper culture, "England would possess the most intelligent and inventive artisans in the world." What then is to be done? I submit that the people—for this is not a question interesting to the working man alone—have a right to appeal to the Government for active aid in this pressing matter. I agree with a distinguished friend of mine, who was one of my predecessors in this chair, that we should "impress earnestly upon our countrymen the incalculable value of self-reliance and self-help," and that in the domestic affairs of the country we should seek the aid of Government only in the last resort; but the reforms for which our working classes ask are on too large a scale to be entrusted solely to the self-reliance and self-help of the people themselves. The establishment of a system of technical training could not possibly be accomplished by the people. With all the aid that he might derive from the precedents of Holland, Berlin, Stuttgart, Austria, Hanover, Karlsruhe, and Zurich, the task is one which would now, in England, require all the energy and power of an able minister, supported by a consenting Parliament. With regard to the dwellings and food of the workman, I may be asked—"Has not the self-help of the people already established building societies and co-operative stores, and are not these sufficient?" I answer, no. They are admirable so far as they go, and they deserve every possible support, but the people can no more make them what they ought to be without further help than they could themselves have established the Post-office Savings Banks, which must be counted as one of the best deeds of the present Prime Minister. The Government have the necessary information. It behoves them now to act upon it. To effect such reforms as I have ventured to suggest is beyond the power either of private individuals or even associations such as this. They can only be effected by a Government which will approach the task in the same earnest spirit which triumphed over the difficulties of the late Education Acts, and which should undertake this, probably not less difficult duty, with vigorous action, with prompt application of powers given by existing laws, and with judicious legislation. If the views I have thus presumed to advance, upon questions which I believe to be of primary national importance, find favour with this Association, we may, I think, at least be able, by calm discussion, and by collecting and disseminating information, to afford valuable assistance in a great cause. We may look back with satisfaction to the part we have taken in bringing about several not unimportant changes in our social system and in our laws. I have already adverted to the fact that to this Association is primarily due the credit of bringing about the great movement with respect to middle-class education, which ended in the passing of the Endowed Schools Act, and the appointment of the Endowed Schools Commission. In the laws of bankruptcy, in establishing the office of public health, in the improvement of our convict

system, in the treatment of discharged criminals, and on other matters, important changes may be directly traced to the efforts and representations of this Society.

I trust the Society may long continue its useful and beneficent action, and if to its other good works it shall hereafter be able to add that it has aided in effecting reforms in the position of our labouring classes which have increased their happiness, elevated their social status, improved their intellectual cultivation, and strengthened their attachment to the institutions under which they live, those friends and officers of the Society who have through years of honourable exertion watched over our interests and guided our proceedings with patient care, will have established additional claims to the respect and gratitude of their country.

At the conclusion of the address, which occupied an hour and twenty minutes in delivering, a cordial vote of thanks was passed to Sir John Pakington, on the motion of the Mayor of Leeds, seconded by the Dean of Durham. The address was listened to throughout with great attention on the part of the audience.

As we stated elsewhere, we will give in our future issues portions of other papers read at the Congress, bearing on the questions advocated by this journal.

ADDRESS AND PRESENTATION TO RICHARD BARTER, ESQ., R.H.A.

A MASSIVE silver jug, accompanied by an address, has been presented to Mr. Barter, at his studio, St. Anne's, Blarney, by a number of his private friends and admirers. The jug, which is accounted a well-executed and beautiful specimen of Dublin workmanship, was from the firm of Messrs. Waterhouse, of this city. It bears the following inscription:—"Presented to Richard Barter, Esq., Sculptor, in remembrance of many pleasant hours in the Studio, St. Anne's, Blarney." The deputation consisted of Messrs. R. Johnston, Q.C.; R. Power, Dixon, Roberts, and G.E. McCarthy. Mr. Johnston read the address. The following is a list of the subscribers, all of whose names are engraved on the jug:—The Hon. D. Plunket, M.P.; Sir E. S. Hutchinson, Bt.; Sir F. W. Brady, Bt.; R. Johnston, Q.C.; Rev. R. W. Maxwell, F. D. McCarthy, G. E. McCarthy, A. Roberts, R. Power, J. B. Power, F. Scovell, J. Finch, J. T. Seigne, R. Mills, A. Bewley, H. G. Palmer, J. Geoghegan, R. C. Lee, J. Colthurst, C. N. Colthurst, A. Findlater, W. Findlater, W. Ware, D. Beamish, H. Newman, H. Dixon.

There are resident artists toiling in Dublin, and studios, too, well worthy of a visit. A little more favourable recognition of their merits on the part of their countrymen in Castle, Corporation, and on the press, would be desirable in this age of voting local testimonials for execution by foreign artists, without any show of reason or public competition.

ENTRANCE COURT, MAGDALEN COLLEGE, OXFORD.

With this number we give as an illustration a bit of domestic architecture from mediæval Oxford. Although of late date, yet there is a quaintness and picturesqueness about it which will commend itself to all genuine lovers of Gothic architecture, for, unlike modern Gothic, a good effect is obtained by the relative position of parts, and not by an unnecessary amount of tracery and carving. There is more feeling in this scrap from the Middle Ages than in dozens of churches of imitation of thirteenth century Gothic which we see springing up on every side around us.

THE COST OF PRIVATE (IRISH) BILLS.

THE following memorial has been forwarded to us for publication. It is a subject that deserves serious attention, and we are glad to hear it is likely to receive it:—

TO THE RIGHT HON. W. E. GLADSTONE, M.P.
The Memorial of the undersigned Clergy, Merchants, and other inhabitants of the town and

neighbourhood of Newry, in the counties of Down and Armagh, in Ireland:

HUMBLY SHEWETH,—That in the last Session of Parliament an act was obtained, called "The Newry Improvement and Water Act," at the enormous cost of about £7,000 (including the expense of opposition), being no less than nearly one-third of the capital required for the carrying out of the entire project. This your memorialists feel to be a legitimate cause for complaint. That in this, and other local public works of a similar nature, railroads and so forth, so heavy an expenditure must be incurred, owing to the business being transacted in the Imperial Parliament, whereby the difficulties and pecuniary loss become so great as to deter men of capital and enterprise from taking up and carrying out many useful undertakings much required in Ireland. Memorialists are therefore of opinion that there is urgent necessity for some remedial legislation to meet such cases, so that evidence may be taken in this country by permanently qualified commissioners, to be appointed for the purpose, or such other tribunal as in the wisdom of Parliament may be deemed expedient. Memorialists therefore pray that her Majesty's Government will take this matter into their serious consideration, and introduce a bill in the ensuing session of Parliament, to obviate what is generally considered throughout the whole of Ireland to be a very great grievance.

ARTHUR C. INNES, J.P., D.L.

[Here follow the signatures of nearly all the Town Commissioners and a large portion of the principal inhabitants.]

TO CORRESPONDENTS.

THE LATE SIR THOMAS DEANE, ARCHITECT.—R.H.A. would feel thankful if some member of the Institute of Irish Architects could furnish him with as complete a list as possible of the works of the above respected architect, also of those of his father; and the years in which each commenced his professional career in this country.

CARLISLE BRIDGE.—The re-building of Essex Bridge is to be proceeded with, we hear, immediately. A memorial from nearly two hundred leading merchants was presented a few days ago praying for the rebuilding of Carlisle Bridge, but the Corporation, though ashamed to shelve the question openly any longer of Carlisle Bridge, consents to the memorial, but stultifies their former action by commencing Essex Bridge first. Is there such a thing, we wonder, as Corporate honour or Corporate dignity? We know there is sufficient Corporate shame in Dublin as would eclipse the raciest days of the old rotten boroughs in Ireland.

CITIZEN.—A letter was read at a late meeting of the City Council from Messrs Lanyon, Lynn, and Lanyon, relative to their plans for rebuilding Carlisle Bridge.

QUACKS AND QUACKERY.—Our second paper on this subject is held over until our next issue, to enable certain public sinners to mend their lines and sin no more. After that there will be no quarter or mercy given to those who persist in aiding medical quacks to carry on their nefarious traffic. Journalism in Ireland must either sink or fall upon this question. It cannot be respectable while it lends its assistance to infamy open and unadulterated.

OBSCENE PLAYS.—Some of our theatres in Ireland and concert halls need a little attention on behalf of the authorities. Low class music-halls are public nuisances, and the very low singers and actors and actresses that jump and gesticulate there are worthy of their audience, which is not saying too much in favour of the tastes of the latter.

THE PUBLIC MARKETS.—There are many, particularly the old ones, in a very dilapidated and dirty condition. Both our meat and vegetable markets need an overhauling. No mere sweeping, whitewashing, or disinfecting will do; the dirt and dinginess is of old standing, and the intolerable smell that hangs about some of them is not deep below the surface, nor many yards removed in their rear. Will the cure come with the new Main Drainage, we wonder; or with the millennium?

HOME RULE IN SCAVENGING.—A Correspondent writes:—"Could you inform me whether the scavenging of the streets of Dublin is under Home Rule or Foreign Rule? If it should prove to be under a local body who have absolute power in the matter and who are earnest advocates for Home Rule, that may help us to judge whether Home Rule as now advocated would exclude dirt, or whether it may not eventually compel us to eat it. An answer will oblige." The Civic Council are the custodians of the city's dirt; and of course the streets, bad and good, are under the "Home Rule" of our local parliament. If the taxpayers are not actually compelled to eat dirt thick and unadulterated, it is from the fact that they have from time immemorial breathed it under other conditions—the sense of smell superseding that of taste.

Several matters which have reached us too late for the present number will be attended to in our next.

ARTISTIC DESIGNS FOR WATCHES.—"A number of new and artistic designs for the embellishment of watches have been invented and exhibited by Mr. J. W. Benson, of Ludgate-hill, and Old Bond-street, London, Watch and Clock Maker to H.R.H. the Prince of Wales, who has exerted himself with commendable success to provide, in this particular branch of manufacture, the union of taste and usefulness so striking in the productions of the French artificers. The recent progress in the art of watchmaking in England is owing to the enterprise and industry of several gentlemen, who are now reaping a just reward for their ingenuity. Amongst these Mr. Benson holds a prominent position, and his designs may therefore be recommended to the notice of the public."—*Daily Telegraph*. For prices of watches, clocks, jewellery, chains, &c. see the Illustrated Pamphlets, which are sent post free for two stamps.

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

RATES OF SUBSCRIPTION TO IRISH BUILDER.

(Town.)	s.	d.	(Post.)	s.	d.
Yearly	8	0	Yearly	8	0
Half-yearly	3	0	Half-yearly	4	0
Quarterly	1	6	Quarterly	2	0

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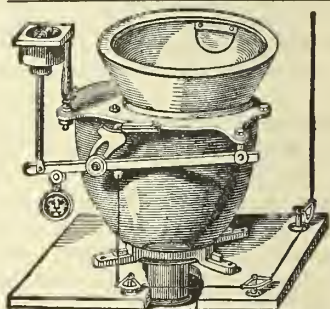
THE attention of Builders and Contractors is requested to the superior quality of the Milverton Limestone, which is unsurpassed for its brilliant and permanent color. It can be supplied of any dimensions, Rough, Dressed, or Polished.

Among the many specimens of the stone in Dublin may be seen the Church, Upper Ormond-quay, built in 1846, or the front of the new Offices of the Scottish Equitable Insurance Company in Westmoreland-street.

The superior Lime is now selling at 5½d. per hhd., at the Works; or at 7½d. per hhd., delivered at Dublin Terminus of Dublin and Drogheda Railway.

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ROLLED MALLEABLE IRON JOISTS AND GIRDERS,

Of various sizes up to 20 in. deep, with Top and Bottom Flanges in proportion. ANGLE, TEE, CHANNEL, and all other forms of Rolled Iron of extraordinary sizes and lengths.

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ALFRED LEDWARD & Co.,
(Successors to MATHER, LEWIS, & Co.)
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A large assortment of Girders up to 12 in. deep and of various lengths, kept in stock.

Wrought Iron Flitches, from 9 in. to 12 in. deep, and to 30 ft. long, always in Stock.

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Tombstones—7 ft. long by 3½ ft. wide	£6 0
Do. 8 " " 4 " "	7 0
Headstones—2 ft. wide by 5½ ft. high	1 10
Do. " " 6 " "	2 10
Do. " " 8 " "	3 5
Do. " " 10 " "	4 10
Monuments " " " "	from £5 to 400 0

All of the very best Limestone. No bad stone used.

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The Irish Builder.

VOL. XIII.—No. 285.

Our Learned Societies.—The Royal Irish Academy.



It is to be feared that we must look in vain in these times for such a bright, literary, and scientific representation in our learned bodies in this country as that which existed in Ireland in the Irish parliamentary period. A cold chill seems for many years to have settled down over all our native institutions. Our learned and professional bodies can scarcely be said to exist, except in name; their labours are sparse, and, with very, very slight individual exceptions on the part of a few members, their services are unprofitably small. When will they wake up?—when will they emulate their brethren on the Continent in the fields of philosophy, philology, literature, science, and the arts? We cannot answer the question. Our learned societies meet but seldom, and the public have rarely the gratification of congratulating them for the services they are rendering in sustaining the olden honour of this nation. Their publications have dwindled down, and the people in general have long since ceased to look forward to their meetings and proceedings as they have in days gone by. Pity that 'tis true, and true 'tis a pity, and we are almost tempted to write, 'tis a shame. We subjoin a list of the olden composition of the Royal Irish Academy in 1793. We forbear furnishing a list of the present state or representation of the Academy, hoping that a new impetus will soon be given to its labours, to the honour of Ireland and to the credit it once sustained, and, we trust, will speedily recover.

COUNCIL OF THE ROYAL IRISH ACADEMY, ELECTED THE 16TH OF MARCH, 1793, FOR ONE YEAR.

COMMITTEE OF SCIENCE.

Richard Kirwan, Esq., F.R.S.
Robert Percival, M.D., Professor of Chemistry in the University of Dublin.
Rev. Hugh Hamilton, D.D., F.R.S., Dean of Armagh.
Stephen Dickson, M.D., F.R.S., Professor of the Practice of Medicine in the University of Dublin.
Rev. Mathew Young, D.D., S.F.T.C.D., and Professor of Natural History.
Joseph Clarke, M.D., Master of the Lying-in Hospital.
Rev. John Brinkley, M.A., Professor of Astronomy in the University of Dublin.

COMMITTEE OF POLITE LITERATURE.

Rev. George Hall, D.D., S.F.T.C.D.
Rev. John Kearney, D.D., S.F.T.C.D., Professor of Oratory in University of Dublin.
Rev. Robert Burrowes, D.D., J.F.T.C.D.
Rev. Richard Graves, M.A., J.F.T.C.D.
Sir Laurence Parsons, Bart.
Francis Hardy, Esq.
William Preston, Esq.

COMMITTEE OF ANTIQUITIES.

Right Rev. Lord Bishop of Killaloe, F.R.S.
Right Hon. William Conyngham.
Samuel Hayes, Esq.
Rev. Edward Ledwich, LL.B., A.S.S. of London and Scotland.
Rev. Daniel Augustus Beaufort, LL.D.
Joseph Cooper Walker, Esq., Member of the Academy of Cortona.
Ralph Ousley, Esq.

SECRETARY: to the Academy—Rev. Dr. Hall.
" of Foreign Correspondence—Rev. Geo. Graydon.
" of Council—Rev. Dr. Burrows.
" of Science—Dr. Dickson.
" of Polite Literature—W. Preston, Esq.
" of Antiquities—J. Cooper Walker, Esq.

We may remark that the majority of the above names were distinguished in some way or another by their labours and their writings. Richard Kirwan was a celebrated mineralogist, whose fame was known in England and on the Continent. John Brinkley was a noted astronomer. John Kearney's lectures in Trinity College gained him great applause. Sir Laurence Parsons, we believe, sat in the Irish Parliament, and his speeches and writings were popular. Francis Hardy was the friend and biographer of Lord Charlemont of 1782 memory. The Right Hon. William Conyngham was the patron of men of letters, artists, architects, and others, and expended a good deal of time and money in forwarding the publication of valuable works on architecture and antiquities. Edward Ledwich contributed a good deal to antiquarian and archæological literature, and published a volume—"The Antiquities of Ireland." Rev. Augustus Beaufort performed similar labour. Joseph Cooper Walker was a most useful antiquary and writer; he wrote a "History of the Dress, Usages, and Customs of the Irish Bards," "Notices of the Early Irish Stage and Players," and "The Rise and Progress of Gardening in Ireland," with other works. Some of the other members of the committees contributed to Irish literature also. The *Anthologia Hibernica*, a Dublin monthly magazine published in 1793-4, said of these men of letters—"While the Royal Irish Academy continues to be supported by men of such talents and accomplishments (whose writings have added greatly to the general stock of knowledge), Ireland need not yield the palm of celebrity to any other literary institution in Europe." This was high praise, but it was well deserved. The mere record of it, brought back again by us to the public gaze, ought to infuse a soul under the very ribs of death, and rouse up our learned bodies and native *literati* to renewed action.

OUR BUILDING SOCIETIES.

We promised to return to the subject of Building Societies, and to show how far they are of service to their members, or what are the advantages, if any, which they possess over other forms of investment. Here in Dublin we have "The Irish Civil Service and General (Permanent Benefit) Building Society," and "The National Building and Land Investment Company of Ireland (Limited)." This latter society is rather an ambitious one in name. Building societies in general, in all of their prospectuses, invite the working classes and small traders principally to join their ranks, and live rent free after a few years. "Pay," say they, "a slightly increased rent for a short period of years, and ever afterwards you have a freehold of your own." The managers and directors of these societies pretend to be very explicit and open in their statements, but they are all *ex parte*; and though they tell the truth to some extent, they do not communicate all the facts to the public.

Is the purchase of a house, we would ask, through the medium of a building society a safe or even a convenient method of investment? Which is it or the savings' bank the safest, the cheapest, or the most remunerative form of investment? Can houses really, by the aid of a building society, be purchased for a sixth or even a fourth part of their value? Is the whole gross rent of a house

all profit to the landlord? Are there no repairs to be made, no rent and taxes to be paid, and are houses always tenanted and inhabited from year's end to year's end? Are there no insurances against fire to be effected, nor any other kinds of risks to be run incidental to the building of house property? To read the glowing statements of our building societies, a green person would suppose that by joining a building society a man may become his own landlord and tenant, and smoke under his own fig tree for the remainder of his life, without any fear, trouble, or annoyance. Blissful illusions these; but how soon they must be dispelled!

We will take for instance, as a first sample, "The Birkbeck Building Society," a popular London formation. We will ask our Dublin readers, in the meantime, to procure the prospectus of the most noted of the building societies in this city, and compare the statements therein with those of London. It will be found that this argument will apply in both cases. The prospectus of the Birkbeck Building Society says the practical operation of building societies may be thus illustrated:—

"A person occupying a house, for which he pays £36 per annum, joins the Birkbeck Society: this house, with about eighty or ninety years remaining in the lease, is valued at £300, for which amount it is purchased through the society. To effect this purchase the member must hold six shares, which will yield exactly the required amount. For this sum the yearly payment will be, supposing the loan to be paid in fourteen years:—

Monthly subscriptions, interest, and expenses for six months	£3	9	6
Number of months			12
Gross yearly payments	£41	14	0
For fourteen years			14
Total payment to the society . . .	£583	16	0
Deduct 14 years' rent of house, at £36		504	0

Total cost of house £79 16 0
being only £5 14s. per annum more than the ordinary rent of the house, and the payments altogether cease in fourteen years. Had he not purchased a house, he would in the same period have paid his landlord £504 for rent alone, which, being deducted from the £583 16s. paid to the society, leaves the actual cost of the house only £79 16s.

"Members purchasing property through the Birkbeck Society, and taking the longest period for its repayment, the subscriptions payable to the society would, in reality, be £1 4s. per year less than the actual rent of the house in which they reside, as shown by the following example, worked out for twenty-one years:—

"Yearly rent of house	£36	0	0
Number of years			21
	£756	0	0
total amount paid for rent in 21 years.			
Brought forward	£756	0	0
Monthly subscriptions and interest for six shares		2	18
Number of months			12
Gross yearly payments	£34	16	0
For twenty-one years			21
	£730	16	0

Total payment for 21 years, including interest and expenses £730 16 0
Showing a clear profit, after paying all principal, interest, and expenses, of £25 4s., which, being added to the value of the house, which would be the member's absolutely at the end of the term of twenty-one years, £300, making a total profit, through joining the Birkbeck Society, of £325 4s.; which, if divided over twenty-one years, shows an annual surplus income of £15 9s. 8d. during the first twenty-one years, and an annual income of £36 during the remainder of the lease, which would not be less than from sixty to seventy years."

So far the society speaks in its own favour; but let us see what sacrifices the members have to make, and what they really expend in hard cash to obtain the property promised.

common origin of language has shown the close affinity that exists between the group constituting what has been termed the Indo-European or Aryan family of language. To the labours of German philologists Ireland is much indebted, and amongst the ablest of these workers is Prof. Max. Müller. Let any one having leisure or a love for the subject, even if not a Celtic scholar, compare the different spelling and sounds of the words, man, father, mother, son, daughter, sun, sea, tooth, in the Sanskrit, Latin, Yend, Lithuanian, Persian, Greek, Slavonian, Gothic, German, Irish, or Welsh languages, and they will be at once struck with their common origin and very close affinity,—indeed numerous words might be introduced of a likeness in the matter of pronouns, verbs and particles, and in the relationship of the verb forms, to die, to be born, to stand, to eat, to live, to know, see, hear, think, drink, thirst, &c. The Celtic tongue may therefore claim a very high antiquity, indeed, not as an unintelligible jargon, but as one that can be used as a key to other languages. The Irish, Scotch Gaelic, and the Manx approach each other so very closely that even at the present day the different natives feel little difficulty in understanding each other. The Gaelic in the Highlands of Scotland and that spoken in the Lowlands—say Argyle—differs a good deal in the pronunciation, but the variation may also be noticed in respect to the Irish Gaelic spoken in Leinster, Connaught, and Munster. Dr. Peter Lombard, Archbishop of Armagh, in his work, published at Louvain in 1632, “*De Regno Hibernie*,” &c., remarks that the enunciation of the Irish differs in the several provinces. In Connaught, he says, where the people were least improved, their pronunciation and phraseology were more correct. In Ulster the inhabitants had the phraseology but not the enunciation. Of the people in Leinster and Munster, Dr. Lombard says that, having their tongue corrupted by the inundation of foreigners, they deviated most from the true idiom of the Irish language. In the present day we are, however, advised to follow the enunciation of the Munster peasant, as being the most correct. In Mr. O'Daly's primer this course is also recommended.

The first book printed in Gaelic in Scotland was a translation of the form of a prayer by John Knox, issued at Edinburgh in 1567. The second was a translation of Calvin's Catechism, published along with an English edition in 1631. The Presbyterian Synod of Argyle, in 1659, began issuing translations into Gaelic of the metrical psalms for the use of the natives of the Highlands, and in 1690 the first Gaelic bible was issued in that country. All these works were in the Irish orthography and Irish dialect. Then came the issue of works in the Scotch Gaelic, chiefly religious, psalms, testaments, bibles, beginning in 1750 and continuing down to our own day. One of the earliest specimens of Scotch Gaelic poetry is that preserved in a collection made early in the sixteenth century by Sir James Macgregor, Vicar of Fortingall and Dean of Lismore. This is to be seen in the Advocates' Library, Edinburgh. In 1862 a selection from it was published, with translations by the Rev. Thomas M'Laughlan, with an introduction by Mr. W. F. Skene. The last named is the author of a work entitled, “*The Highlands of Scotland: their History, Origin and Antiquities*.” Some of these poems are pure Irish, others Scotch Gaelic. By their light the Ossianic controversy might be again reconsidered and finally settled. There is little doubt that the name of the bard and the subjects treated are essentially Irish—viz., Caolte M'Ronan, Allan M'Ruadri, Gilicallum Mac an Olla, Farres, or Ferghus Fildh. We will not dilate upon the subject of the Ossianic theory or the Macpherson warfare, or say whether the latter invented his Ossianic originals. It is quite possible that very many Ossianic snatches of song existed from time immemorial in the Highlands of Scotland, and that Macpherson acted the part of a skilful joiner, and wove or

welded them together, adding connecting narratives from his own bright fancy. A close connection always existed from the earliest time between the inhabitants of the North of Ireland and the Highlands of Scotland; and at no time was this connection more strong, perhaps, than from the twelfth to the middle of the sixteenth century.

Mr. Skene, already alluded to, says in his work: “The Irish sennachies and bards were heads of a school which included the West Highlands, and the Highland sennachies were either of Irish descent, or, if of native origin, resorted to the bardic school in Ireland for instruction in the language and accomplishments of their art.” The early cultivation and written language of the Highlanders were identical, or nearly so, with that of the Irish. Whether the Gaels of Scotland had at any time a vernacular of their own we doubt,—a native language, we mean, or spoken tongue, not derived from the Irish. The Scotch have struggled hard, and with some effect, for first honours in the antiquity of their race, language, and history; but the more they struggled the greater has been the proofs in favour of the Irish Gael, and their indebtedness to him. We will not blame our brothers, the Scottish Gaels; their ambition is commendable; and, as the world grows older, we hope the Irish and Scottish Gaels will understand each other better, and will show less jealous feelings about trifles.

Respecting the present state of the Irish language and its prospects, in a preservative sense, there is less reason for regret than formerly, notwithstanding the decrease of our population. It is not dying out as fast as was supposed, and professorships of it are more numerous. Students, lovers, and philologists in Gaelic, too, may be counted in numbers at home and abroad. The Irish-speaking community of this island is not hemmed in beyond the Shannon, but in Ulster and Leinster many hundreds may be found still speaking the mother tongue, as well as in Munster and Connaught.

During the last years of the eighteenth century, and during the present century, several efforts were made to give greater impulse to the study of the Irish language. The Royal Irish Academy, the Gaelic Society, and the Ossianic Society did some useful work by their publications. Of late years the Royal Irish Academy has not done as much as might be expected, nor have our colleges—Protestant, Catholic, or mixed.

There is no excuse now, and no difficulty in the way of those who desire to possess a knowledge of the Irish language. There are numerous dictionaries, grammars, catechisms, tracts, primers, testaments, bibles, and sermons in English and Irish for those who care to study. The Irish character is simplified, and its reading made easy. Had we time and space we might enumerate the works or labours of those who deserved honorable mention for their labours in behalf of the native tongue. Many of these struggled at home and on the Continent in dangerous days, where their labours were unrequited, and nothing but love of their tasks animated them.* The Rev. Paul O'Brien, like the Rev. Francis Molloy, did good service in his compilation of an Irish grammar. Dr. O'Brien was a professor of Irish in the College of Maynooth; his grammar was intended principally for the use of the college, but it afterwards became very popular throughout the country. In his desire to make it useful, he visited Scotland and the surrounding islands;

* Several years ago there existed a monument (and perhaps exists still) in the church of Athlone with the following epitaph:—“This monument was erected for the Right Worshipful Matthew De Renzie, Knight, who departed this life 29th August, 1634, being of the age of 57 years. Born in Cullen, in Germany, and descended from the family of the renowned warrior, George Castriot, *alias* Scanderberg; who, in the Christian wars, fought 52 battles with great conquest and honour against the great Turk. He was a great traveller and general linguist, and kept a correspondence with most nations in many weighty affairs, and in three years gave great perfection to this nation by composing a grammar, dictionary, and chronicle in the Irish tongue; in accounts most exact, and exceeding all others for his great applause. This work [monument] was accomplished by Matthew De Ienzie, his son, August 29, 1635.” Do any of our Irish archaeologists, antiquarians, or philologists know aught of the above works, or anything more of the history of the author?

he also visited the Isle of Man, that he might study the Manx tongue. He made several copies of the latter, and translated into Latin and Irish. Dr. O'Brien began the study of the Irish language at eighteen years of age. Like Archbishop MacHale, Dr. O'Brien translated portions of Homer into Irish verse, and also selections from Hesiod, Lucian, &c., the Satires of Horace and Eclogues of Virgil. Drs. Molloy and O'Brien had able followers in the last century and the present. Halliday, Lynch, Foley, MacCurtain, Vallancy, O'Reilly, O'Brien, Connellan, Neilson, O'Donovan, Bourke, and others—clergymen, laymen, and scholars—have given us useful grammars and lexicons of the Celtic tongue.

Later again, in the periodical and newspaper literature of Ireland, the *Citizen* magazine, the *Dublin* and *Irish Penny Journals*, and the *Nation* newspaper, an impulse was given to the learning and cultivation of the Irish tongue. The political school of writers called “Young Ireland,” and their friends or associates, have also helped here and in America in creating a taste for the Gaelic. Dr. O'Donovan, Petrie, Hudson, Hardiman, D'Alton, Ferguson, Clarence Mangan, Thos. Davis, O'Curry—artists, authors, professors, and poets—each in their individual capacity have materially assisted the Irish language to live and be loved in our day. Of course we cannot enumerate the names of all who have of late years by their writings and studies developed the fields of Irish native literature.

Last, though not least, John O'Daly lives, and has not lived in vain. His former services in the Ossianic and Jacobite field of poetry is tolerably well known, and the first edition of his “*Self-Instruction in Irish*,” published, we believe, nearly a quarter of a century since, is also well known. Mr. O'Daly has not tired of his labours, but returns to them with fresh zeal, and his latest effort is such as ought to earn for him commendation on all sides. The new edition of his work is much improved, and the learning of the Irish language is rendered quite easy to the English reader. The proper sounds for the Irish words are given by a combination of English letters, as near as can be possibly attained. We agree with the author that the task was not an easy one, but none can say he has failed. We can safely advise beginners to commence with Mr. O'Daly's little primer—it will save them a world of trouble and reference. We can also assure them that the advice and directions of the author could not be better given. Once the beginner has mastered the small difficulties that may be met in this primer, the larger and more ambitious grammars in the Irish language may be consulted with profit. The Rev. Ulick Bourke's “*Easy Lessons in Irish*,” and John O'Daly's primer, would form two handy little companion volumes, which all beginners should avail themselves of.

Were our country in the position she ought to occupy, her Celtic scholars and her men of learning would not be forgotten, and die poor and unrequited, as they have. Her Petries, O'Donovans, O'Currys, and O'Dalys would have met with a suitable recognition in life. Alas! even those who could amongst us have aided such men, and voted them the testimonials they well deserved, have held aloof. It was only when the cold earth rattled on their lowly coffins, that the remembrance came back, and tears bedimmed the eyes for their sudden loss. Let us be just, then, to the few among us of the living whose labours keep the long, long vista, of our history clear. A little while they may be with us, and, again, in a little while, they may be gone. Peace be with those who are gone—of many we have a fond and unfading remembrance:—

“Though like stars to their home we have seen them depart,
Yet they live, Oh! they live, in each vein of our heart.
Still the light of their looks on our darkness is thrown;
Still their voices breathe round us when weary and lone.
Like shades, they come back with each feeling old strain,
But the world will ne'er look on their equals again.”

DUBLINIENSIS.

B

MEDICAL QUACKS: THEIR DUPES AND NEWSPAPER SUPPORTERS.

SECOND NOTICE.

WITH every respectable member of society crying shame, how long more, may we ask, will our newspaper Press continue to afford advertising facility to the soul-degraded and God-abandoned prurient medical quacks of Great Britain? A few of the respectable journals of London have already, coerced by public pressure and indignation, exorcised the deadly fungi of feculency and filth from their columns. When will the others follow the good suit? and when will the daily morning journals of Dublin cast out the unclean thing from their midst? If raids continue to be made on behalf of the Police Commissioners on the hells of Holywell-street, and if the police are empowered in London and Glasgow to hunt down shebeen brothels, and betting-house proprietors, surely they are also empowered by the same law to root out pestilent medical quacks and their supporters.

Let an ukase at once go forth in Dublin, from the Castle Yard, that quacks will be punished as trespassers against the public morals with the utmost rigour of the law, and let their newspaper supporters be also apprised that they will be held amenable for their infringement of public decency, and we promise a reform will soon be visible. Some action, short, sharp, and decisive, must be soon instituted to crush the hydra, and strike terror into the debased hearts of unprincipled persons. Our first exposure has effected some good, and we will not cease our advocacy from time to time, no matter what may be the opposition or ridicule flung in our way. We are too well acquainted with the sinuosities of public advocacy and public life, and the means employed by disreputable agencies, to be turned from our path. We fear nothing, we court no favour at the sacrifice of truth, we ask only the aid of others, who think as we do, in assisting us through a task of no small trouble and not a little peril. We gave in our first notice a tolerably complete list of the medical miscreants who have been for years plundering the public by their vile and villanous schemes. We might have extended it much further. Besides the London metropolitan quacks there are numerous country ones, whose head-quarters are in the chief manufacturing towns and large seaports. The more notorious of the London fraternity, for whom that city has latterly been getting too hot, have changed their residences and their names. Failing to get advertising facility in journals of large circulation in the city, they have opened a bazaar for their ware in the pages of every provincial newspaper into which they can force an entry by the most audacious and lying pretexts. Forged testimonials, concocted "Opinions of the Press," references to some of their paid agents, and make-believe diplomas, are exhibited from fictitious colleges or universities on the Continent, Australia, and the United States.

We find the notorious and prosecuted Dr. James, *alias* Dr. Hammond, again at his old work, under another *nom de plume*—Dr. Walter Jenner. Thus this pseudo-medical scamp and swindling electrician designates himself in the country newspapers. The names of our once most celebrated and deceased medical practitioners are assumed to cover their criminal work, and for the purpose of deceiving the unwary. Walter de Roos has also his filth bespattered in the pages of numerous country papers. This arrant impostor acts on the principle of the runaway thief, who cried "Stop thief." He, forsooth, warns the public against medical quacks, himself being one of the worst type of that order. In the south and south-west of England, in Plymouth, Bristol, Portsmouth, and Southampton, there exist a number of these nefarious quacks, and the south and west of England papers afford every facility for their villanous imposture. Seemingly respectable chemists and druggists, and newspaper establishments in the country act

as the depôts for the sale of books, pamphlets, and medicine concocted by these degraded fellows. In Plymouth we have an old offender against decency and morals—a Dr. Goss. Next we have "*Every Man His Own Doctor*," a Medical Work on Marriage, which may be had direct from Mr. Lawes, Medical Publisher, (*sic*!) 14 Hand-court, Holborn, London; "The New French Remedy, Therapeon," Mr. Johnston, Bookseller, 27 Verulam-street, E.C. "A New Medical Work on Marriage." This nasty work may also be had at the office of many country newspapers, as well as from the above publisher. "Never Despair—Most Wonderful Discovery." J. Smith's American Life Drops. This impostor is a professor or lecturer on medical botany, "of forty years' practice at home and abroad." He tells his readers to observe his address; we give it—T. Smith, 4 Merchant-street, Bristol. The wife of the professor is also a practitioner in delicate cases. Madame S. Smith, at the above address, hails from "the Reform College of Boston," and may be consulted by any female dupe who wants to mend her line and sin no more. Dr. Hunter continues to lecture and dispense at the Institute of Anatomy, Birmingham. Arthur Dixon, Esq., Hounslow, near London, gives "The Confessions and Experiences of an Invalid;" and several "eminent physicians," *i.e.*, charlatans and "retired clergymen," are anxious to confer "A Boon to All," on the receipt of a "stamped envelope."

We will now give the public an inkling of the system of agency carried on through London in the ordering of the most disgusting class of advertisements that can be imagined:—

Office of the St. Pancras and Holborn Journal.
86 High-street, Camden Town,
London, —, 1871.

Sir,—Having entered into a contract with the proprietors of the enclosed advertisements for the sole agency for a series of years, I am able to offer them for insertion in every issue of your newspaper for one year certain, for seven pounds, less my commission, ten per cent.

If accepted, a copy of every paper containing them must be posted on the day of issue to my office. JAMES DUNCAN.

In all future correspondence relative to these advertisements, the No. — should be quoted, to save trouble.

The above is a copy of an order for a disgusting advertisement sent to several Irish journals; and the advertisement to which it relates is at present appearing in several English country papers. Here is another:—

English, Foreign, and Colonial Advertising and
Newspaper Agency.
Advertising Contract to the Publisher.

No.—, 1871.

Sir,—If you will insert the enclosed slip of advertisements in your newspaper for fifty-two weeks, for seven pounds, less my commission of ten per cent., and send a copy regularly to my office, I will pay the account quarterly or half-yearly, as you may desire.

GEORGE REYNOLDS.

39 Shakspeare-road,
Stoke-Newington, London.

One other order for the present:—

To the Publisher of the —.

Sir,—Having entered into a contract with the proprietors of the accompanying advertisements for a fixed period, I can offer them for insertion in every issue of your paper for one year, for seven pounds, less my commission of ten per cent., including a copy of each paper containing these advertisements, to be sent regularly on the day of publication. Yours faithfully,

P. SMILES.

21 Harrington-square, London.

It must be remembered that these orders relate to the weekly country papers of limited circulation. In the case of daily papers, where the advertisements are ordered for three or four days a week, the prices paid are four, six, or even twelve times as large. In daily and weekly papers of large circulation in London, these medical quacks pay a guinea perhaps for a few lines, and often from five to twenty pounds a-week. Their

ill-gotten income must be enormous, that enables them to advertise by wholesale in numerous papers through the provinces. They plunder their dupes of thousands of pounds in the year, and they expend several hundreds in advertising. Whenever they can they repudiate their orders for advertisements, throwing the onus of payment on their agents—their agents, in many cases, being themselves, under another *alias*.

Think of the atrocious rascality, double-dyed and double-edged, that induces the medical quack to establish a "Newspaper Agency" for himself. He sends his filthy advertisements to the country papers, determined often to repudiate his orders if trade does not turn out brisk. Under an *alias* he gives his orders, and gets his seven, ten, and often twenty per cent. commission. Here is plunder with a vengeance. Some London newspaper canvassers for advertisements supply the Dublin daily and provincial Press with the quack advertisements of Hammond, Hill, Barnes, Smith, Sylvester, James, Jones, Watson, Thomson, and others we previously mentioned, and receive their commission of twenty per cent. from our moral newspaper proprietors and pillars of the church.—*anathema*. We spoke in our former article of Dr. Hammond, *alias* Dr. James, *alias* Walter Jenner, and of Dr. Smith, *alias* Dr. Hill, *alias* Dr. Watson, respectively of Bedford-square, Burton-crescent, Charlotte-street, and Russell-square. We said that these filthy public robbers advertised extensively in the Dublin and provincial as well as in the English papers, and we would again refer our readers to some of the Dublin morning and weekly journals where these names may be found, shamelessly exposed, day after day and week after week.

We will now direct public attention to one or two Dublin quacks. Who, may we ask, is S. A. Levenston, author of "The Casket of Health," one of the vilest emanations of pruriency ever issued in this country? He styles himself "Surgeon Accoucheur, of 12 Kildare-street, Dublin." We wonder much the Police Commissioners allow his casket of filth to be distributed in Dublin. Who is J. P. Mulvany, M.L., L.A., Medical Hall, Christchurch-place, Dublin? He advertises something *Truly Wonderful*—"The Balm of Life and Prophylactic Specific." He tells us to avoid advertising doctors, surgeons, and quacks. We hope his advice will be taken. There are some other suspicious characters who advertise in Dublin, and who reside in it, but we have not had time as yet to inquire into their credentials—we will do so in good time.

The Irish College of Surgeons should furnish the public with a complete list of those who are duly qualified medical men, and the list ought to be posted in public institutions, where it would be available for everybody to refer to. It would prevent many cases of imposition.

Our contemporary, the *Architect*, questions our right to aid in stamping out this fell abuse, and thinks it beyond our province and scope. In perfect good humour, and without *blarney*, we tell our architectural friend that it is within our province, and it is not only our duty, but the duty of every honest journalist in the kingdom to lend his assistance in crushing the hideous and frightful cancer. Our architectural co-labourer ought not to be so fond of finding fault with its building contemporaries, who have already achieved public good by their advocacy long years before it was ushered into existence. Class journalism, so-called, in London, has led to many useful reforms, and it would be well if the conductors of class journals were always acquainted with the professions they advocate. The conductors of the IRISH BUILDER can plead guilty to a practical knowledge of architecture, building, and other kindred matters; and as sanitary reform is a subject that interests them much, and ought to interest every architect, builder, engineer, and workman, the IRISH BUILDER advocates it for the general good. The trade of quackery is pernicious in all

its surroundings, and its existence is prejudicial to the public morals and the public health. It was always intended from the commencement to make the *IRISH BUILDER* an organ not only useful to the particular class it represents, but to the general reader. It has not changed its course, nor is it likely to do so. The conductors of the *Architect*, perhaps, intend starting another class journal, and can it be possible that the *IRISH BUILDER* is interfering with their design? We have not read the *Grocer*, the *Ironmonger*, the *Oil Trade Review*, or the *Wine Trade Review* lately, or others of that description of "class journalism," nor have we ever closely analysed the character of their articles or advertisements. We presume that the editors and conductors are good practical grocers, ironmongers, oilmen, and wine-tasters, and, perhaps, add to their other qualifications a smattering of architectural knowledge. Forbear, then, Mr. *Architect*; your fun is of a ghastly kind, your barb is dipped in honey, but we fear there is poison beneath. Though *Guerre à l'outrance* be on our shield, we will meet you openly, with our vizor off, and a smiling face. We will not stab you in the dark, nor tell lies of you; but if you are inclined to assist us in our struggle with a hydra of iniquity, we will accept your aid, though we must decline to follow your proffered advice.

In concluding for the present, we would seriously advise Irish newspaper proprietors to wash out the damned spot they have allowed to sully and defile their papers. Irish journalism cannot be pure or above reproach while quackery is helped to live and thrive. In the face of this iniquity the public advocacy of our newspapers is a sham. Journalists should be public instructors and educators of the people, but instead of that many of them have degenerated into public corrupters of the morals of our people. We feel we are in the right—we know we are doing a public duty—and no matter how little we may effect in the beginning, the cause we advocate will grow, and the battle will be eventually won. It matters not to us who may succeed in giving quackery its death-blow. It will be a satisfaction at least to us to know we have earnestly and honestly made war on the most pestilent of abominations; and that while we live, wherever we meet with it, its supporters will receive no mercy or quarter at our hands.

GUERRE A L'OUTRANCE.

THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

At the meeting of this Association, held on the 18th ult., at Butler House, Kilkenny, the proceedings were characterised with much interest. We are glad to perceive that there was a fresh accession of new members. There is no doubt but the labours of the Association have been productive of a large amount of national good since its formation upwards of twenty years ago. Without desiring to be invidious in the mentioning of names, we think that to the Rev. James Graves the Association and the lovers of archæology and Irish antiquarian remains are much indebted. Mr. Patrick Watters, the Town Clerk of Kilkenny, has also been very active of late years in helping the investigations of interest to the society, and which possess a national as well as a local value, though belonging to Kilkenny. Mr. Maurice Lenihan, the editor of the *Limerick Reporter*, and historian of Limerick, is an active and efficient member. Mr. W. F. Wakeman continues to labour with his old love of the subject. We join in with the regret expressed by Mr. Graves at the loss the Association has sustained in the death of the Earl of Dunraven, who was, we believe, a liberal patron and active member of the Association, and who at all times manifested great interest in the preservation of the old ecclesiastical structures of this country. We subjoin a slightly-abridged report of the proceedings of last meeting.

BARRY DELANY, Esq., M.D., in the chair.

NEW MEMBERS.

Rev. Churchill Babington, B.D.; Rev. W. G. Todd, D.D.; P. Maxwell, Esq.; J. W. Gibson, Esq.; George J. Hewson, A.M.; R. W. Mylne, Esq., F.R.S., F.S.A.; Thomas Potter, Esq.; Philip N. Hare, Esq.; Martin J. Farrell, Esq., C.E.; Henry Thompson, Esq., M.D.

On the motion of the Rev. James Graves, the Rev. W. G. Todd, D.D., just elected a member of the Association, and Edmund F. Browne, Esq., a former member, were admitted to Fellowships, they complying with the necessary arrangements.

PRESENTATIONS.

Mr. W. F. Wakeman, on the part of the Earl of Enniskillen, presented to the Museum a number of interesting objects from the Ballydoolough crannogs; also, on the part of Mr. T. Plunkett, Enniskillen, a very curious grinding-stone, found in "the Miracles" crannog, near Monea; and, from himself, another grinding-stone and several stone balls from the same place, a portion of a jet bracelet from Lough Eyles, and other crannog articles; also four tradesmen's tokens, found near Enniskillen, one of which was that of "Aldridge Sadler, of Athlone, baker," but the other three required further scrutiny.

John Love, Esq., Annagh Castle, near Nenagh, presented a curious pike or javelin head, found at Crover Castle, in Lough Sheelin, Co. Cavan, about the year 1848; also an ancient bridle-bit and key found at Ross Castle, Co. Meath, and some curious ancient leaden nails for fastening on roofing-slates, from Annagh Castle, with part of the bridge of a sword and a buckle, of brass, from the same.

The Rev. James Graves presented a box ticket of the "Gentlemen's Plays," of Kilkenny, 1818, bearing the signature upon it, "Richard Power."

M. J. Whitty, Esq., *Daily Post* office, Liverpool, presented a photograph of the ancient tomb of the Whitty family, in the old church of Kilmore, Co. Wexford, of which a description, with an imperfect drawing, had been contributed many years ago to the Association's Journal, by the late Mr. Samson Carter, C.E.

Bigoe Williams, Esq., Dover, presented a photograph of the celebrated ancient moat of Knockraffon, near Cahir, the ancient residence of that branch of the descendants of Olioll Olum, who at a later period assumed the name of O'Sullivan; also a photograph of the Black Prince's tomb in Canterbury Cathedral.

J. G. Robertson, Esq., on the part of the Marquis of Ormonde, presented a blunderbuss barrel, curiously mounted on a swivel. His lordship knew nothing of its history, but that it had come down amongst other old arms in Kilkenny Castle. The stock was of beech, very much worm-eaten.

Edwin J. Eyre, Esq., Rookery, presented a sketch of a pocket-shaped celt found in Omey Island a few weeks since, in a graveyard where none but women are buried, according to a custom originating in the belief of St. Festie's mother having been interred there. Report adds that the only man who was ever buried there was found the next morning lying on the top of the grave!

W. H. Patterson, Esq., Dufferin Villa, near Bangor, presented a photograph from a rubbing of a monumental slab found at Ballysaggart, St. John's Point, Co. Donegal, and removed to the Roman Catholic chapel of Killybegs. The very curious sculptures on the tomb represented the arms and dress of the Irish gallowlasses. There was no inscription, but Mr. Patterson suggested that, as the MacSweeney's were lords of the district, it probably commemorated some ancient warrior of that turbulent race, the chief of which was the hereditary leader of the gallowlasses under the O'Donnells and other northern families.

Dr. James presented a tradesman's token, found in his garden, at Butler House, which

was struck, as the legend showed, by "Matthew Long, of Tallowfoilly [Tulow-Phelim, Co. Carlow?] merchant;" as also a halfpenny of Queen Elizabeth, a Cronabane halfpenny, and some other more modern coins, found in the same place.

CURIOUS OLD MANUSCRIPT.

Maurice Lenihan, Esq., exhibited a very curious and valuable vellum manuscript, originally bound in oak boards, known as the "Triumphalia," being a register made by Father John Hartry, a monk of Holycross Abbey, Co. Tipperary, in the second quarter of the seventeenth century, of all the old deeds and writings connected with that religious community which he could obtain access to, and also all the traditionary lore on the same subject which had been handed down to his time. The manuscript, which is noticed very fully by Harris in his continuation of "Ware's Writers" (and who had a loan of the document), was for a long time in the custody of the O'Fogarty family of the Holycross district, but found its way ultimately to the archiepiscopal library, Thurles. Mr. Lenihan said he was indebted to Archbishop Leahy for a loan of the book, with, of course, strict precautions as to its careful preservation and due return, and he had permission to make a copy for his own use. He now also exhibited his copy, which was very beautifully made, and the illuminations which illustrated the original most carefully reproduced. Amongst these, the illustration of the legend, "the miracle of the eight hands," and a representation of a procession or pilgrimage from Kilkenny to Holycross in the year 1602, are particularly vivid and striking. Amongst the traditions recorded in the manuscript, the very curious legend of the endowment of the Abbey by "the Good woman's son" is supplied at length, and a picture of the sedilia is given as a representation of his tomb. The full title of the manuscript is—"Triumphalia Chronologica de Cenobio Sancte Crucis Sacre ordinis Cisterciensis in Hibernia, in quibus plura salutifera S. Crucis ligno patrata miracula, aliisque memoratur desiderata illustrantur." The writer was a native of Waterford, residing first in the Abbey of Nucale, in Spain, and afterwards at Holycross; and he compiled his work between the years 1640 and 1649.

Mr. Graves expressed much interest in the old manuscript, and in the admirable copy which Mr. Lenihan had made, and said the Association must feel indebted to that gentleman for bringing it from Limerick.

Mr. Robertson pointed out the beauty of the design and colouring of the flowers, in which the initial letters at each section in the manuscript were inserted.

Mr. Lenihan also exhibited a silver pectoral cross and reliquary, bearing the initials, "C.B.," and which was believed to have belonged to the Most Rev. Dr. Christopher Butler, of the house of Kilcash, Roman Catholic Archbishop of Cashel.

THE ROUND TOWER OF MONASTERBOICE.

With reference to the proposed works for the preservation of the Round Tower of Monasterboice, near Drogheda, in so much danger of destruction from its state of advanced decay, Mr. Graves read the following report of Mr. Graham, of Monasterboice, as to the preliminary arrangements for the getting up of scaffolding, &c.:-

"At length, after much interruption and consequent delay, we have reached the top of the tower, inside,—that is, as far as it is broken down to. The height from that to the highest point now standing is 16 feet, and the height from the base to that point is about 95 feet, the original height probably 110 feet. It appears to have had originally at least six lofts or floors. I have got five lofts constructed in it exactly where the former lofts were; the highest point can readily be reached by a ladder from the uppermost loft. I have also got the foundation poles of the exterior scaffolding fixed in their places. That part of the tower about the south window which is between the third and fourth lofts, is in a very bad state: it admits the

light through it in several places, so that it is almost miraculous that half of it did not fall long ago. The building over that is in a much safer state. It is evident that the best cement and grouting stuff must be used with it, and that the whole tower must be pinned and pointed inside as well as outside, and done by a very skilful hand. It would be idle to expect that all this could be done in one season; time must be given and pains taken with it, for the sake of its future permanency. In broken, unfavourable weather, even in summer, such as we had, I may say, during the whole of the past month, men could not safely work at it. This was a great cause of our delay, so that after all much would not be gained, even if access could be had to the top of it sooner."

GENERAL BUSINESS OF THE MEETING.

The following were the general papers contributed to the meeting:—

"Remarks on the Discovery of a Pre-historic Cairn near Trillick, Co. Tyrone:" by W. F. Wakeman, Esq.

"An Account of a Visit to the Church of Killeena, and the 'Goban Seer's Cave,' in the Parish of Ramoan, Co. Antrim:" by Geo. Langtry, Esq.

"Notices of the names of places in the Co. Wicklow:" by the Rev. R. Galvin, P.P., Rathdrum.

"Inscriptions on the Monuments in the old church of Moylagh, Co. Meath:" by Rev. B. W. Adams, Cloghan Rectory, Co. Dublin.

"On the Modern Flint Knives of Savages, as illustrating the Irish primeval weapons:" by the Rev. J. H. Scott, Seirkyran Glebe.

THE DEATH OF LORD DUNRAVEN.

Mr. Graves said he had been just reminded by Mr. Lenihan of a loss which their Association and the cause of Archaeology in general had sustained in the death of the Earl of Dunraven. No one but those engaged in such pursuits knew how much the deceased lord had that cause at heart, and how actively and liberally he promoted it. He himself (Rev. Mr. Graves) had not many days since received a letter from Lord Dunraven, dated from Malvern—he little expected at the time that it would be the last,—concerning his lordship's interest respecting the proposed reparation of the Round Tower of Monasterboice. He was most anxious—as every archaeologist should be—that every care should be taken to prevent anything being done which would interfere with the ancient character of the structure; and he particularly expressed a hope that no attempt would be made to rebuild the lost portion of the top of the tower, stating that he was aware of certain circumstances connected with the structure as it stood at present, which bore upon the general evidence as to the original object and use of the Round Towers, which he feared might be effaced. He (Mr. Graves) had written in reply, asking what particular circumstances were referred to; but his lordship's last illness prevented any answer from being received. Lord Dunraven had recently directed much of his attention to the propriety of establishing a Government Department of National Antiquities in Ireland, and his influence with the Premier would have been most important on that subject, but that, unfortunately, the hand of death had intervened.

Mr. Lenihan referred to the number of judicious re-edifications of ancient buildings which Lord Dunraven had carried out, at a great expenditure, at Adare and the surrounding district.

Mr. Graves said that the Earl had in his later years devoted much time to obtaining correct photographs of the architectural features of the more ancient ecclesiastical structures in Ireland. He had gone round personally with his artists to those ancient buildings, and directed their operations. The last time he (Mr. Graves) had met his lordship was on the occasion of his being on his way to Kilkenny from photographing the doorway of the old church of Clonamery, in

this county, when he called upon him at Inisnag for a few minutes. He wished to know if Mr. Lenihan was aware how the collection of photographs thus made had been disposed of.

Mr. Lenihan said he was not aware.

A general expression of regret at the loss to Archaeological research and the cause of our national antiquities sustained in the death of Lord Dunraven, was made by the members of the Association present.

On the motion of Dr. Fitzsimons, seconded by Dr. James, the usual vote of thanks was given to donors and exhibitors, and an adjournment took place to the first Wednesday in January, 1872.

GUTTER, GUTTER, EVERYWHERE!

How long, how long, ye gods, how long
Must Dublin swim in mud?
We hear the law is very strong
For mischief in the bud.
From Stephen's-green to Mountjoy-square,
Through streets both left and right,
There's gutter, gutter, everywhere,
And not a broom in sight!

There's fever in the Liberties,
There's small-pox on the Coombe,
There's poison spreading with each breeze,
And sickness in each room!
Our city rulers still declare,
"Whatever is, is right!"—
That's gutter, gutter, everywhere,
And not a broom in sight!

What says the Borough Engineer?
What says the Town Clerk? Nil!
They've sat in clover year to year,
And they are sitting still.
The freedom of their office chair
They understand it quite,
With gutter, gutter, everywhere,
And not a broom in sight!

Fat Aldermen must never walk—
They're all Lord Mayors elect;
Town Councillors are full of talk,
And stiff about the neck.
But "Larry Doolin" knows his fare,
And drives them home all right,
Through gutter, gutter, everywhere,
And not a broom in sight!

The Liffey rolls along quite black,
With odours rich and thick;
It runs to sea and then runs back
To salt us to the quick.
We groan in pain, we sometimes swear,
And curse the deadly blight,
With gutter, gutter, everywhere,
And not a broom in sight!

Who will we honour for the gifts
Our city has received,
By all the shabby civic shifts
That could be well conceived?
Up with his statue high in air,
Sir Puddelock is knight;
He drained the city everywhere,
But held the sewage tight!

CRIVS.

PLANS OF FARM DWELLING-HOUSES BUILT ON THE ESTATE OF THE DUKE OF LEINSTER.

OUR illustrations represent plans of farm dwelling-houses being erected for the Duke of Leinster, under the direction of Charles W. Hamilton, Esq. No. 1 shows the front elevation, section, ground and bedroom plans of the two-storey dwelling-house; and No. 2 that of the smaller size farm-house, the dimensions of which may be seen on reference. We may instance that the designs are part of a series of buildings, comprising large and small farm houses, labourers' cottages (double and single), with several out-houses in connection. With a view to improving the condition of both tenant-farmers and labourers, and setting an example to others who may be so inclined, the buildings were designed for the Duke of Leinster. They admirably answer their purpose. The farm dwelling-house No. 1 is provided for every want—good sized kitchens, dairy, and other rooms below, with three bed-rooms and closet in the second storey. The smaller sized farm-house of one storey will be seen also to be amply provided with what is most needed—bed-room accommodation and ample-sized kitchen. In respect to the foundations, masonry, flues, the materials and workmanship, great care was taken that everything supplied was as specified. The masonry in the external walls is 21 in. thick; rough hammer-dressed or rough punched stone quoins to walls of building. The flues to kitchen fire-place are 12 in. in diameter. The door-sills are 6 in. deep

by 12 in. in width. The brickwork is of the best stock bricks, no place or unburnt bricks being permitted. The jambs of the external openings of doors and windows are built with bricks in 9 and 14-in. blocks, properly tailed into the masonry. All the timbers, joists, lintels, and breastsummers are of the best Memel or red pine. Shutters are provided for the ground floors; particular care has been taken that none but the best description of timber should be used.

In the matter of drainage, equal care was bestowed in providing for the health of the inmates. The floor levels were kept at least 6 in. above the outer surface of the ground, and in excavating the trenches a good sound foundation was reached in every part. The bottom trenches were drained by a field drain carried from the lowest part of the foundations to still further lower ground, and the bottoms of all the trenches were so formed as to drain off any moisture to such outlet. We may remark again, in reference to the masonry, that thorough bond stones were used to every 10 ft. superficial, and no course of masonry exceeded 14 in. The joints of the masonry were raked out and completed 1½ in. deep, and finished with a pointing of lime, sand, and forge dust. The roofing and flooring and the internal joiners' work is of the best St. John's deals.

A word in respect to out-houses and offices. Due attention has also been bestowed in this respect. Well-arranged piggeries, manure-pits, and fowl-houses over pig-house, and spacious yard in connection. There are also well-designed cattle-sheds, with iron columns in front.

In our next we may furnish further plans and particulars in respect to other buildings now being erected, but for the present we will conclude by saying that both to his Grace and his energetic agent, the country is much indebted for pioneering the way to such a marked and long-needed improvement.

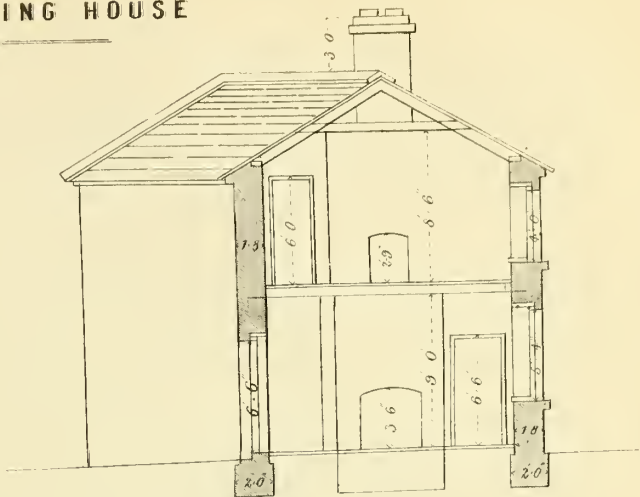
THE NEW GAIETY THEATRE.

THIS theatre is advancing, but is yet far from completion. It will not add much to the architectural beauty of the city, though it may be found to answer the purposes of its projectors. The stage will be about 45 ft. by 54 ft. in width. The proscenium opening will be 28 ft. high by 28 ft. wide; the pillars on either side will be of Bath stone; the private boxes are fourteen in number; the balcony projects a considerable way over the pit; the top gallery and the pit each will accommodate about 700 people. The entire capacity of the theatre will be about 2,000 persons. We cannot as yet speak of the designs, tracery, painting, and other accessories of the stage, as they are not yet to be seen *in situ*. We hear that every precaution is being taken to guard against fire, and that the Waterworks Committee have allowed a four-inch main to be introduced, with the necessary appendages. Ventilation is effected by two triangular shafts communicating with different parts of the house, and reaching the air through the roof. The main entrance will be in South King-street. The doors and windows will show in frames of cut stone, but all else will be one block of brickwork, with no attempt at ornamentation. The architect, as we stated some months since, is Mr. Phipps, of London, and the contractors are Messrs. Meade and Son, of Great Brunswick-street. There is little doubt but the builder will carry out his contract according to design and specification. Without adopting the language of unmistakeable puffery, so well practised by some of our daily contemporaries, we cannot say much either in favour of the design, the site of the building, and a good deal of the arrangements and surroundings. We wish Messrs. Gunn success, and if they are so fortunate as to win it, we will not feel displeased. We, however, think that the New Gaiety will lack many essential requisites necessary for the upholding of the legitimate drama, or ordinary representations on a respectable scale; and we also think that when a new theatre

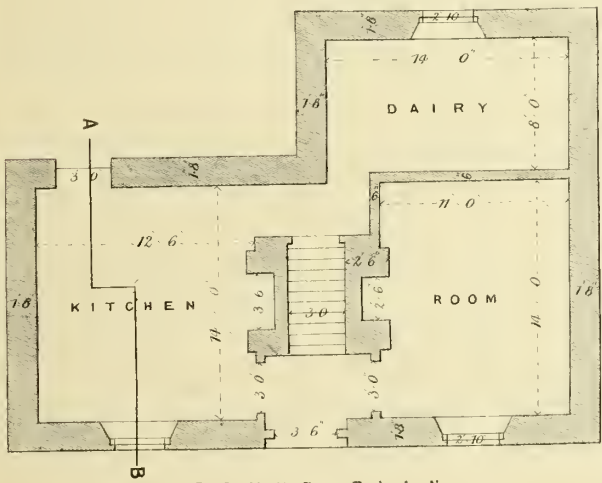
FARM DWELLING HOUSE



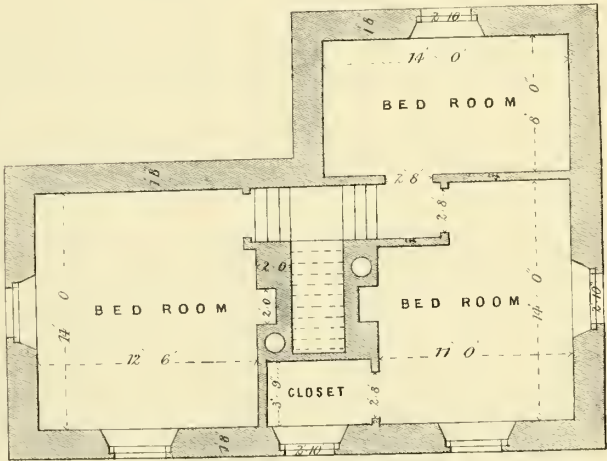
FRONT ELEVATION



SECTION THRO' A B

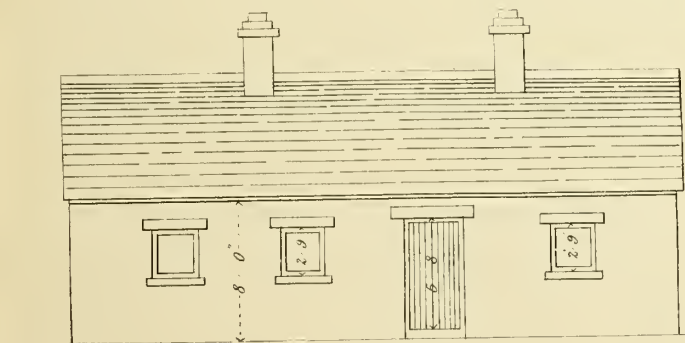


GROUND PLAN

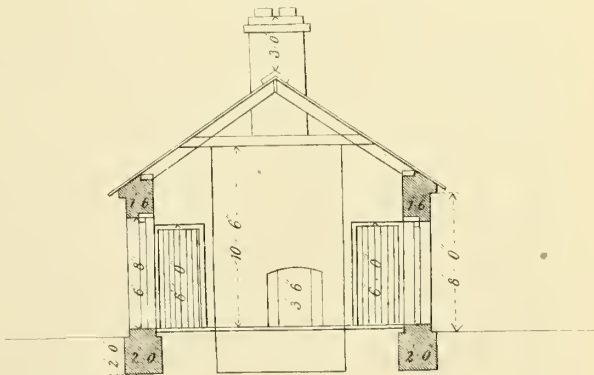


BED ROOM PLAN

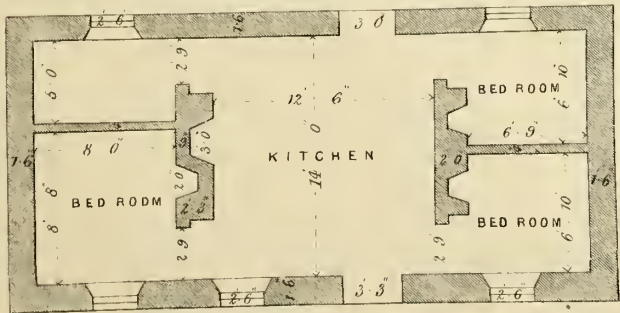
SMALL FARM HOUSE



FRONT ELEVATION



SECTION



PLAN

PLANS
OF
FARM HOUSES
Erected on the Estate of
HIS GRACE THE DUKE OF LEINSTER

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was projected for Dublin, the expectation held out originally ought to have been realised. We might also say something respecting the appointments made in connexion with this theatre, but we will rest here for the present. The theatre is announced to open on the 27th inst., but it can only open in an unfinished state.

TRINITY COLLEGE CHAPEL.

SOME repairs and improvements have taken place in this chapel, which has been reopened a few days since. The chancel has been paved with encaustic tiles of a diaper pattern, and a balustrade, composed of Irish marbles, has been erected in front. The plinth is of Galway black marble. The rails above the base moulding are what is termed Irish Jasper, from Ballinacurra quarry, opened by Messrs. Sibthorpe and Son, of this city. The hand-rail capping and the steps leading to the chancel are of Westmeath marble, polished. The aisle is also laid with encaustic tiles, and a heating apparatus has been introduced, supplied by Messrs. Ross and Murray. The tiles were supplied by Messrs. Maw and Co., but the work of putting down was done by Messrs. Sibthorpe. The work of improvement was done under the superintendence of Mr. John M'Curdy, C.E.

ALMSHOUSES FOR LARNE.

MR. Charles M'Garel, to whom the inhabitants of Larne are already indebted for a town-hall and a cemetery, as also residences for the superintendents of national schools, has offered to provide ten almshouses for the town, "for the benefit of persons not in the condition of paupers, who, having once seen better days, have, by no fault of their own, been reduced to comparative poverty, though not to actual destitution." In the selection of recipients of this charity, preference is to be given to those who by residence are locally connected with Larne and the neighbourhood. We would wish to see a like liberality shown on the part of others who could give without missing. There are many towns in Ireland that stand in need not only of decent cemeteries and schools, but of decent dwellings for the working classes, the erection of which on the part of rich proprietors would not only bring them a handsome return for their outlay, but would gain them honour and respect, as well as give them the satisfaction of knowing that they were doing Christian work. The inhabitants of Larne are fortunate in the possession of a good benefactor of his kind. May there soon be many similar examples to chronicle.

SOME MORE "THINGS NOT GENERALLY KNOWN."

THAT some of the best practising architects that Dublin possessed before and after the Union were originally journeymen carpenters, and that we owe a few of our most magnificent public buildings to their genius.

That Forbes M'Kenzie's Scotch liquor Act ought to be tried for a while for experiment in Dublin on Sundays, if only to see how long the natives would "stand it."

That some of the medical quacks of Dublin perform the rôle of the thief crying "stop thief" remarkably well, when some sharper than the rest proclaim in ominous words, "Beware of Quacks." (N.B.—Reader, take the advice for the nonce.)

That the friendly, benefit, burial and building societies of Ireland, and Dublin in particular, are in general unsafe, and not a few rotten at the core.

That nobody need be terribly alarmed at this while they can "take up their bed and walk" away with their lodgments in time.

That the race of hatters who formerly lived

in and made Temple-bar their own, and who are now all but extinct, came originally of a Norman stock—i.e., from Normandy.

That the asphalt pavement will before long become general on the leading thoroughfares of the city, and that the Corporation have no necessity for creating a large staff of scavenging officials and plant, and taxing the city to support what will not be required.

That the river Tolka is very foul between Glasnevin and Ballybough, and that its waters ought to be utilized between these two points, not for drinking purposes, but for irrigation.

That "Mud Island" is a historic spot. It was once under the sea, next surrounded by the sea, and though in the sea no longer, it has strong proclivities to "stick in the mud."

That the personage known in the last century as the "walking gallows" is buried somewhere in the grounds of St. Andrew's churchyard, but the exact spot "nobody knows," and perhaps "nobody cares."

That the houses that line Westmoreland-street and D'Olier-street were built in uniform style, and originally had beautiful and well-executed stone door and window dressings, pilasters, with Ionic capitals, and other appendages of the order; but of late years Vandal builders and shop-front architects have butchered and destroyed their architectural features, leaving but a wreck behind.

That the Theatre Royal buildings, Hawkins-street, were formerly occupied by the Royal Dublin Society, and that the Theatre Royal itself at present, as to appearance, approach and surroundings, is a crying scandal to Dublin. Poolbeg-street theatre ought to be dipped at the Poolbeg Lighthouse, to wash the dirt off its face and interior. Our Medical Officer of Health could, no doubt, improve it by the aid of a good dose of disinfectants.

That the "New Gaiety," in many respects, will be the "New Gloomy," as to approach, entrances and exits. "The Grafton," or "St. Stephen's Theatre," would have been a more applicable and appropriate name than adopting a Parisian or travestying the name of a London one.

That the Guardians of the North and South Dublin Unions never voted a Christmas dinner to the inmates at their own individual or collective expense; and that they always pocketed the thanks while the ratepayers, who bore the cost, were obliged to pay for the reading of it.

That the Dublin Mechanics' Institute needs public help, and also an energetic board of directors, who can and will organise as well as suggest, and that its remodelling is essentially necessary in these days of advanced educated opinion and technical knowledge.

That every workshop ought to be a normal school of Art, and that every journeyman mechanic ought to be capable of taking his foreman's place, if required, on an emergency or through accident.

That compulsory education is proper and legitimate; and that if a parent neglects to educate his child, the State or municipal authorities should do it, and sue the parent for the legal costs.

That health is one of the greatest blessings under heaven; but that health is impossible if cleanliness is not observed, and pure air, pure water, and wholesome food provided.

That everybody caught in the act of throwing orange-peels on the flags ought to be fined a penny for the first offence, five shillings for the second, if recognised, and forty-eight hours in the police cell for the third, without the option of a fine. People would

have wonderful sharp memories if the Police Commissioners would enforce these regulations.

That the Dublin Custom House was not built in vain, though the purposes for which it was formerly utilized are but the shadow of a fleeting shadow. In strength, beauty, and fitness it is perfect, and this very perfection will keep it intact until it is required for native resources and international interests again.

That a Lord Mayor ought to be, *de facto* (supposing him to have sufficient intelligence), both the chief ruler as well as the chief magistrate of his city during his mayoralty; and the police force, through virtue of his office, should be amenable to his will.

That coroners' inquests, in the constitution of the jury and in their general conduct, need a reform, and that coroners' juries in general know no more of the subjects they sit upon than the anatomy of the feet they walk upon. *Query*, do people walk upon their feet.

That though the Yankee builders move houses from one side of the street to the other, an Irish bishop of the Establishment eclipsed them by building his house downwards from the top. *A fact*.

That snakes can live in Ireland, and are living in it.

That lead, copper, iron, silver and coal are to be found in abundance in the County Dublin, and that importing these commodities into Ireland is akin to shipping coals to Newcastle.

That people in general in this country will read these statements, but the information, in the majority of instances, will pass into one ear and out on the other, as if there was no necessity for knowing what would be a benefit for many to know.

That we will conclude for the present, but will not cease, on every opportune occasion, to hammer into people's ears, whether they are pleased or not, a knowledge of things that ought to be more generally known. ○

EXPERIMENTS AT THE BAILEY LIGHTHOUSE.

A SERIES of experiments were conducted a few days since at the Bailey Lighthouse, Howth, with a view of proving the adaptability of a new method of mechanism for the utilising of gas instead of oil. The experiments were carried out partly by the engineer in the Messrs. Edmundson's firm in this city, and partly by the Lighthouse Commissioners. Whilst the engineer conducted the experiments at the Bailey, observations were taken across the bay at Salthill. The comparative power of two lenses were tried—one which is permanently located at the lighthouse, and a new annular one. A temporary testing-house erected at the lighthouse served for the purpose of the experiments. Mr. John Wigham, of the firm of Messrs. Edmundson, has already patented, we believe, some inventions and designs connected with gas and lighthouse illumination, and the firm are anxious to prove the great superiority of gas over oil for lighthouses. The experiments just concluded go to prove that, in some situations, gas may be manufactured in any quantity and with safety, and utilised at the same time for the purposes proposed. One or two lighthouses in Ireland are already illuminated by gas; and there is little doubt but at seaboard stations, at least, Messrs. Edmundson's patents can be used with credit and economy. We may expect, however, to hear shortly what the Lighthouse Commissioners think on the whole subject, and how far and to what extent they will recommend gas and the new appliances for adoption.

SANITARY AGENTS.

WE have noticed in our last issue the properties and value of disinfectants as sanitary agents for the prevention of disease. We cannot too often recur to the subject, although, as we remarked, if the laws that ensure public health were rightly and efficiently attended to, the use of disinfectants would be, in a great measure, superseded. Still there will be always occurrences, we fear, when the use of disinfectants must be resorted to, and to meet such exigencies we think it well to transfer into our pages the following remarks of Dr. Moreau Morris, of New York, from a paper read by him on the "Sanitary" Cure of Contagious Diseases:—

"Contagious or infectious diseases have certain laws of inception, growth, and propagation. The elements of which they are composed are as yet unknown, but their methods of progression and diffusion are better understood. We know that they have a beginning, and can, in many instances, anticipate and prevent the initiative; if once fairly established, we can control if not destroy them. By the aid of chemical science we have learned how to arrest, destroy, and transmute into innocuous compounds, the germs that propagate disease. The appliances for removing the causes of disease are varied according to the nature of the evil; if there are filthy streets, or accumulation of decomposing matters in cellars, privies, or houses, cleansing and disinfection, or arrest of decomposition, are the means employed. If there is a confined, vitiated atmosphere, openings are made, letting in sunlight and air. In a word, the most important means for securing health and preventing diseases are fresh air and pure water.

In the practical application of disinfectants they are classed into two groups:—

1. Disinfectants which arrest fermentation: such as carbolic acid; sulphate of zinc and iron; sesquichloride of iron.

2. Disinfectants which effect chemical decomposition: chloride of lime; sesquichloride of iron; chlorine; lime; sulphurous acid.

The disinfectants that arrest fermentation are either employed separately or mixed with some of the same class, depending upon the circumstances in each case. The better qualities of carbolic acid are used for fumigating rooms, disinfecting bedding and clothing; but for basements, cellars, and privies, a 70 per cent. acid is all that is required.

For the disinfection of damp cellars and yards, a concentrated solution of protosulphate of iron, mixed with a low grade of carbolic acid, is employed; and for privies, a solution of sesquichloride of iron of 1.30 specific gravity is used, mixed with 10 per cent. of carbolic acid and water. Sulphate of zinc is also found useful in solution with water, or in combination with carbolic acid, for infected clothing and bedding. The formulæ employed are as follows:—

Sulphate of zinc, 8 ounces; water, 3 gallons. Or, sulphate of zinc, 8 ounces; carbolic acid, 1 ounce; water, 3 gallons.

The latter has been found effectual in arresting or destroying the infection upon bedding and clothing in scarlet fever and small-pox, and probably will be found efficient in other contagious fevers.

Disinfectants that effect chemical decomposition:—The fermentation of filth and vegetable germs are destroyed by chloride of lime, and it ought to be liberally employed. Its use in relapsing fever proved invaluable, as likewise with other malignant fevers depending upon filth and foul atmosphere. It is used either in a dry form sprinkled upon the floors, or in solution upon the floors and wood-work of infected rooms. In damp places, to avoid the hygroscopic properties of the lime, carbonate of soda is added. In the cleansing and disinfection of houses and apartments infested with relapsing fever, chlorine gas has been extensively used, and with the best results.

The sanitary officers have also found sulphurous acid a valuable agent for the fumigation of infected rooms and clothing. It arrests fermentation, and acts as a deoxidizer. It is used specially in the disinfection of the contagion of small-pox, scarlet and yellow fever, and in skilled hands seems to control effectually.

The Metropolitan Disinfectant Fluid is highly commended by Dr. Morris, as a preparation which has been employed during the past three years for purposes of privy disinfection, and was the result of a thorough scientific experimentation by the officers of the Metropolitan Board of Health.

Sesquichloride of iron is prepared by dissolving the hydrated sesquioxide of iron (bogore) in muriatic acid; to this is added 10 per cent of carbolic acid. This forms the fluid in a concentrated form,

and is largely diluted with water at the time of using. Its preparation requires chemical knowledge, and involves time; but it is kept for sale at two places in the city, and is thus always available. All night scavengers are compelled by the Board of Health of New York to use it. Its effects are compound. The iron checks fermentation, and the chlorine acts as an oxidizing agent. Its carbolic acid also aids in arresting decomposition and fermentation, and the whole combination, therefore, by its chemical action, decomposes the sulphuretted hydrogen. Hydrated chloride of aluminum has recently been brought to notice as a disinfectant, but not having yet given it a fair trial, no definite statement of its properties can be given."

We agree with Dr. Morris, that, after all, the most important means for securing health and preventing diseases, are unlimited fresh air, and a copious and ever-constant supply of pure water. We pre-suppose that education accompanies the indoctrinating of sanitary knowledge into the minds of the people. Without the rising generation of the poor in this country being properly schooled by a good system of primary education at least, enforced, if need be, by compulsory powers, the blessings of sanitary science will be robbed of more than half its value. On the several clergymen of different creeds, as well as on the local authorities of each district, an obligation rests to inculcate home and personal cleanliness as well as the tenets of religion. Cleanliness, it is truly said, is next to godliness; and dirty habits, and dirty surroundings in city and town are a disgrace to all connected.

THE PUBLIC HEALTH.*

MANY of the subjects relating to public health and social progress still offer problems for solution of extreme difficulty, and much good remains undone for want of its being known how best to do it. In confirmation of this, and for other reasons, I am tempted to mention that I have for some time been authorised by an inhabitant of London to state, that he is willing and ready to appropriate to the improvement of the health and condition of the poorer classes of the metropolis a sum equal to that given by the late George Peabody for a similar purpose—or say half a million of money, when he can see a mode of satisfactorily effecting this without the fear of pauperising the classes he seeks to benefit. Means were taken to make this offer known to a limited extent, and a large number of suggestions have been sent to the proposer, but he is not yet satisfied as to the course that can wisely be taken. We must congratulate the individual on holding in his hand the power to achieve a glorious end, and I would add a hope that he may speedily come to a wise determination. A noble example of what may be done by an employer to improve the condition of those engaged for him, is to be found in this district—I mean, of course, Saltaire, where intelligence and far-sighted benevolence have provided healthful homes, education for the children, innocent enjoyments, and means of culture. The time is coming when the history of the results of that establishment, in a sanitary and social point of view, should be written with a view to the guidance of others.

We lose, on modern computation, a hundred thousand lives annually by preventable diseases, and millions of money in consequence of these deaths, and of premature disability in cases where death does not ensue. A million paupers receive relief weekly in England and Wales. With complete study of the laws of health, preventive medicine, and improved sanitary arrangements throughout the kingdom, the number of this melancholy army would soon be materially lessened. I have spoken of disability where death does not ensue. With reference to this, let me say, we want registration of it. The registration of deaths, which is now enforced, is of the greatest value; but we need beyond that the registration of sickness, which would show the magnitude, not only of the grief and poverty to individuals caused by disease,

but of the money loss to the public. The desirability of this is fully recognised by the Royal Sanitary Commission, so that we may hope for legislation to enforce it before long.

The connexion between bad sanitary arrangements and ill-health is now largely admitted, but not fully, or we should surely not find, in unnumbered places, accumulations of filth vitiating the air, large populations drinking polluted water and debilitated by unhealthy dwellings, and preventable diseases annually carrying off their thousands, pauperising the families left behind, and injuring the whole community from the highest to the lowest. What is called for is, after all, simple. We want clean air, clean water, clean food,—*purity*, in fact. As we strive for purity in life, moral purity, so let us strive to obtain for society the advantages of physical purity. "Unto the pure all things are pure," says St. Paul (Titus i. 15), which may be true in conduct, but at present the belief may not be safely acted on with reference to the air we breathe, the water we drink, or the food we eat. Moreover, how is it possible for moral purity to be retained in such dens as those in which multitudes of our fellow-creatures pass their lives? The assertion, "As the home so the people," denounced as almost impious when first written, has come to be pretty generally accepted; but the homes in thousands of cases remain in the most wretched condition, and the natural results continue to follow.

The injury done to our agricultural population by the want of proper dwellings can scarcely be overstated; in fact, the whole condition of this part of the people is a disgrace to the age. I must restrict myself, however, to the question of health. I have visited hundreds of cottages with rooms scarcely the height of a man, damp, cold, undrained, and overcrowded, with heaps of decomposing matter around, and where, in short, everything was being done to counter-balance the advantage offered by Nature of a plentiful supply of pure air. In parts of the country where Portland cement and gravel, broken stone, or burnt clay are readily obtainable, a considerable saving in the cost of building may be effected by the use of concrete walls. It is absolutely necessary, however, that the concrete should be properly made and rightly applied; when this is the case, it is an excellent and enduring material; if otherwise, it is worthless rubbish. It may be mentioned, as it will give confidence to those disposed to employ it, that the Metropolitan Board of Works now allow the use of it within their boundaries, and that the Inclosure and Tithe Commissioners permit money lent by them for the improvement of estates, to be expended in the erection of concrete buildings. In both cases, however, the work is required to be done under stringent regulations. It is to be regretted that the number of builders who have applied themselves to the economic execution of such work is very small.

By lessening the cost of erecting cottages something is done towards inducing a proper provision of them. With good plans, wise superintendence, and the choice of proper materials, much may be done in this direction. Non-absorbent walls and floors are amongst the *desiderata*, and, above all things, such arrangements for the removal of the refuse that it shall not by any possibility contaminate the water supply.

Sound and healthful dwellings are required in towns for a lower class than have been yet thought of,—the multitude who are unable to pay more than, say, a shilling a week as rent. There is a large number of these who require only one room,—a man and his wife, without children, single men and women, and widows. There seems no valid reason why a part of the Peabody fund should not be applied to meet this want, and it is to be hoped the trustees will turn their attention to the subject at once.

The desire to produce cheap houses by speculators has necessarily this bad result, that the efforts of the builder are all directed simply to that end, to discovering the means

* From the Builder.

of erecting a dwelling at the least possible cost, not in providing to the utmost extent for the health and the comfort of the occupant. If the wages of a labourer are not sufficient to enable him, by the exercise of due prudence, to pay for a decent habitation, warm, dry, airy, and well drained, calculated therefore not to destroy his health and working power, and to send him to a premature grave, and his widow and children to the union to be maintained at the expense of the ratepayers, it is time they were made so. It is found to be wise and paying policy to provide horses with good stables, and pigs with healthful styes. Surely it ought to be thought necessary to do as much for the men who drive and feed them. Among minor evils, ill ordered dust-bins should be mentioned as the fruitful source of sickness; decomposing matter, under present arrangements, being allowed to remain in them for weeks, sometimes months, to pollute the air. Better supervision is needed. If the occupants of houses were to see that all consumable matter was burnt, the danger would be lessened, and the quantity would be so much reduced that arrangements might be made for its removal day by day.

A vast deal of ill-health, to say nothing worse, results from the too early occupation of newly-built houses. In the suburban districts of London, and of many of our large towns, small houses by the thousand are planted on the ground, often on heaps of unwholesome deposits placed there to fill up hollows whence brick earth or sand may have been removed, are finished with pauseless rapidity, and, all reeking as they are, receive a family, often before the workmen have left. The danger involved was recognised long ago. An ancient foreign proverb says, as to a new house, "The first year for my enemy, the second for my friend, the third for myself." The speculative builder of to-day too often cares for neither friend nor enemy. The houses, like certain historic razors, are made to sell. To turn a penny is his sole object, and the buyer must look out for himself. Alas! for such a state of feeling. It unfortunately prevails in modern society to a much greater extent than is consistent with the right condition of public health, giving that word its full meaning.

Among the arrangements for furthering the object we have in view, facilities for recreation and amusement must not be forgotten. Amusement must be had, will be had, and if that which is rational and innocuous is not obtainable, less wholesome excitements will be resorted to. The provision of open and adorned places, picture galleries, social gatherings, flower shows, the practice of window gardening, facilities for obtaining books, for the enjoyment and the study of music, "penny readings," cricket, swimming, archery, drill, are all matters calling for the fostering aid of those who desire to see a good state of health prevailing, and would contribute their share in rendering the world happy, and leading to a higher type of manhood. Popular meetings for recreation have a further value as serving to bring classes together, counteracting the tendency to severance now in operation, and which has aided to produce the great danger that threatens society at this moment.

It is the opinion of some who have inquired, that we are deteriorating physically as a people: that the number of men, for example, rejected on physical grounds from amongst those who offer themselves as soldiers or policemen, is greater proportionately than it was a dozen years ago. I am not disposed to accept this belief in our deterioration without reservation. It may be, and, indeed, unquestionably is true, in the case of thousands of our fellow-creatures pent up in close courts, garrets, and cellars, without pure air and water, or knowledge which would lead to an improvement in their condition, and in the case of the thousands born of this class who go to fill prematurely the hospital and the graveyard. But there are other portions of the population of whom a

different story may, it is hoped, be told. Still, the destruction of health and life by preventable causes is enormous, and we are again made to feel, by the belief alluded to, the vital necessity of continuous efforts to bring about a better state of things.

Every one may assist in his particular sphere in disseminating knowledge of the kind required, and building up a proper state of public opinion. By the exercise of this alone may we hope to obtain satisfactory laws, and to see those laws properly acted on. The want of education in what affects the human frame,—the operation of the agents by which it is influenced,—is unfortunately almost universal; if it were not so, laws to enforce sanitary requirements would be much less necessary than they are. Sanitary science should be taught to all from the earliest years in schools of every grade. Until this is more generally done, we shall go on, as now, destroying one another, and blind to the fact, obvious to a Latin poet 1800 years ago, that, "Life is not to live, but to be well." This great question of health calls for the primary and unremitting attention of statesmen and legislators; it is far above party considerations, far superior in importance to the great majority of subjects which monopolise attention. Without education and health no nation can advance and be happy, and to bring about those conditions should be the chief object of all government.

THE LATE CHARLES BABBAGE.

CHARLES BABBAGE, at the ripe age of four-score, has passed from amongst us. Well and popularly known, and almost outliving his fame, though that has not been small, his birth dates from 1792. His name has supplied a proverb to our language, for to outstrip Babbage at calculation was deemed next to impossible. His name is mostly associated with the invention of his celebrated calculating machine and "Tables of Logarithms." These logarithms were used in the calculations of the whole of the Trigonometrical Survey of Ireland, and in those of the English Survey from the period of their publication. They were also printed for foreign circulation, with prefaces in the German and Hungarian languages. Another work of Mr. Babbage's that obtained a world-wide recognition—for it was officially introduced into Prussia and Spain, while it was translated into French Italian and Russian, and was several times reprinted in America—was his "Economy of Machinery and Manufactures," the materials for which were gleaned on a tour of inspection in Britain and the Continent, which the author made in preparation for the practical consummation of his ideas upon mechanical calculations. This work was published in 1832. Four years after he made a contribution to the well-known series of Bridgewater treatises. The aim of his essay was, as he himself expressed it, to show that the power and knowledge of the great Creator of matter and mind are unlimited. The object of his machine was to construct and print numerical tables by a mechanical process of "adding" and "carrying" the differences between the successive numbers of which the figure-columns in such tables are composed. For instance here are half-a-dozen numbers taken at random from a common table of logarithms: 86711, 86717, 86723, 86729, 86735, 86741. Now, the difference between any one of these and the next following is six. Therefore, by taking the first number and continually adding 6 we get all the numbers in the series. This addition of differences, carrying the figure where necessary, and the printing of the resulting numbers was the work which Babbage's machine was devised to perform; not however with such simple differences as those in our example, but in the highly complicated cases in which the differences vary, and "second differences" are involved, which have to be "added" to make the first differ-

ences, and these again added to give the final numbers. Babbage first publicly broached his ideas on the subject in a letter to Sir Humphrey Davy, and in other ways, in 1822. The letter was sent to the Treasury, and the Government submitted the scheme to the Royal Society. A most powerful committee of that body voted it adequate to its intentions, and recommended it to public encouragement. Whereupon the Treasury took up the proposal, and granted Mr. Babbage £1,500 to perfect the machine. It was commenced with the highest available skill, in 1823; and money, far more than the above sum, was from time to time voted in payment of the bills for material and labour. Five years passed, and the Government grew anxious. Another committee was appointed, of men as great and high-minded as before. Their verdict was, in effect, "Go on—give more money; the thing must answer." More money was advanced. In 1829 the Government had given £3,000, while £4,000 had been privately spent by Mr. Babbage on the business. It was estimated that £4,000 more would complete the work, and this sum, all but a few hundreds, was voted. Another year brought about another committee's appointment. Their report was an echo of the last; it embodied admiration, satisfaction, reliance upon ultimate success, and these approvals were not hastily given. The whole subject was thoroughly investigated before a verdict was arrived at. This committee advised the erection of a workshop close to Mr. Babbage's house, that the work might be hastened by his constant supervision. For this, and for the completion of the machine, from £8,000 to £12,000 was required, and this was to be voted in yearly sums of about a fourth of the amount. The building was erected, the work was recommenced in 1831, and the total expenditure rose to £17,000, and then came a crash. The chief machinist, who had constructed all the apparatus and tools, sent in his accounts in such a manner, it is said, that they could not be audited, and made claims that could not be entertained. All attempts at a compromise failed, and he withdrew all his skilled workmen, and as a fatal blow to the enterprise, carried away all the valuable tools that had been devised for the work. Strange as it may appear, this act was justified as legal; anyhow, it gave the calculating machine its *coup de grâce*. It was not touched again. In 1834 or 1835, a simple printer in Stockholm, M. Schentz, learnt, through Dr. Lardner's article in the *Edinburgh Review*, of the existence of the difference engine. He was fascinated by the idea of it, and was impelled to attempt a machine for the same purpose. He devised one, and, with the assistance of his son, overcame all the difficulties, technical and fiscal, of its construction. Like Babbage's in principle, it calculated tables by differences and printed the results; but in details it was widely different, so different that it could not have been copied in any part from the British machine, and it fulfilled the full hopes of its inventor. Before us, as we write, lies a table of logarithms calculated and printed by it, and specimens of other trigonometrical and astronomical tables similarly produced. And the book containing them is dedicated to Charles Babbage! The Swede succeeded, it may be said, where the Englishman partially failed. Yet Babbage was not jealous of the foreigner's deserved success. Babbage was educated at Peterhead College, Cambridge; graduated A.B. in 1814, and M.A. in 1817. Through his long life he was fondly attached to scientific pursuits, and in his works on the "Economy of Machinery and Manufactures" he turned the first sod in a field of inquiry that has been well worked since with advantage to the community. He was a man of deep thought and broad ideas, and his writings betray a searching philosophic spirit. There is little doubt, however, that the frustration of his hopes in respect to his famous machine caused him not a little sore disappointment; but he died at peace with mankind and the world, and he deserves to be remembered.

BOOKS RECEIVED.

Detail Drawings and Sketches of Ecclesiastical and Domestic Buildings of the Middle Ages, in England and France. By Frederick Rogers, architect. London: R. A. Sprigg (formerly Atchley and Co.), 106 Gt. Russell-street.

To the professional man Mr. Rogers's work will be ever useful, but its usefulness is not confined to any one class. Artist, archæologist, antiquarian, student of history, and general reader, if he possess a love of art and architecture, will find this work of Drawings and Sketches of the Ecclesiastical and Domestic Buildings of the Middle Ages invaluable. The foreign subjects comprise upwards of forty drawings and sketches, with details of doorways, fonts, windows, portals, transepts, towers, mouldings, &c., of some of the most celebrated continental cathedrals, including those of Chartres, St. Peter's, Lisieux, Church at Jonay, Mantes Church, and Rouen. The domestic buildings include some of a rare type, the preservation of which are to be much desired; such as the houses at Ypres, Bruges, and Tirmont, at Bayeux, Lisieux, and Maintenau, or that of Dinan.

The English subjects possess, perhaps, a greater charm, particularly those connected with the cathedrals of Ely, Canterbury, Ripon, Furness Abbey, Fountains Abbey, Rievaulx Abbey, York Minster, and Wells Cathedral. The sketches of the old English cottages, farm-houses, and inns are perfect and admirable. Those in Berks, Oxon, Kent, and Hereford are among those of which we have a knowledge ourselves, and they are of a quaint and varied character. Their selection by the author of the drawings was a good forethought, for showing the difference as to outward style as well as general construction. The view of the old house at Yeovil, Somerset, is a most striking representation of the old George Inn, formerly called "The Three Cups." Although Mr. Rogers does not give the Castle Inn at Yeovil, it is an old building worthy of notice, and a drawing and detail of it would be interesting.

The tomb in the churchyard of Woodbridge, Suffolk, constructed entirely of moulded brick, is a very perfect specimen of a mural monument, types of which are very rare. Pooley Hall, near Tamworth, is a good representation of the baronial class of castellated structures.

The value of a book like this under notice is, we repeat, considerable. It is suggestive to the architect, and without acting the mere copyist, he will find assistance on reference whenever his own taste or that of his clients leads him to seek inspiration at founts far back but not forgotten, and yet worthy of being utilized in the service of modern architecture. As a mere book of drawings and designs, were we even to look upon it in that light, Mr. Rogers's work would have its many artistic uses; and lastly, as an historical work, for it is essentially historic, the volume will hereafter be much enhanced in value. It was a wise thought to preserve on paper a faithful representation in accurate measurement and detail of those grand old gems of our ecclesiastical and domestic architecture of the Middle Ages. Year by year they are getting less and less. War as well as the elements, on the Continent, has wreaked its fury on many a hoary tower and sainted shrine; and, though these islands in days gone by have suffered not a little from Puritan zeal and Vandal malice, they yet preserve many peerless specimens of an architecture of which we are all proud. We are thankful, then, when professional men of Mr. Rogers's stamp devote their time and energies to the preservation, even in drawings, of the glorious monuments of British architectural skill.

It is needless for us to add that the work, in its mechanical branches, is executed with the accustomed accuracy that signalized the publishing house of Atchley and Co., now carried on by Mr. R. A. Sprigg, the successor and publisher for some length of time of all Atchley and Co.'s copyrights.

Designs for Monuments, Headstones, Mural Tablets, &c. By the same Author.

WE have received a copy of the above excellent work. It contains sixty original designs studied from ancient examples. How the author has worthily performed his task we will endeavour to tell in our next issue.

Belfast School of Art. Report of Board of Managers for the year 1870-71. Belfast: Marcus Ward and Co.

WE are glad to see the Report of the Belfast School of Art so soon issued in pamphlet form. We gave in our last issue an abstract of the report, with some interesting extracts from the addresses of the Head Master. We are very well pleased to find that the suggestions of Sir Charles Lanyon, as those of the Head Master, have been adopted, and the special local prizes are to be distributed at Christmas. A number of local gentlemen have already contributed to the Local Prize Fund. Each prize will be accompanied by a handsome certificate, which the pupil can preserve as a memento of his success.

In relation to the local prizes and the objects in view by the Board of Managers, the following observations, which we extract, will fully explain what is intended:—

"To induce the pupils to apply themselves heartily to the prescribed course of training necessary to attain a knowledge of the Arts of Drawing and Design, and to encourage them in those habits of industry without which the best abilities are often valueless, the Committee of Management, on behalf of those interested in the promotion of Art in relation to Manufacture, intend, at the close of the present year, to give prizes for Drawing in its various branches, as taught in the School, and for Designs suited to the requirements of local industries.

It is intended, in awarding these prizes, to have regard to regular attendance, coupled with proficiency, as the proof of the steadiest industry and best attainments. The greater number of prizes will, of course, be given for such work as is taught in the School, and thus more clearly test the proficiency of the pupils, and exhibit the results of teaching.

The *Art of Design*, owing to the short time the School has been in existence, cannot be expected as yet to be highly developed in the students, and, except to a few who come sufficiently advanced, will be altogether out of the reach of the majority. The main body of the students, however, who are as yet learning the A B C of the art, will be encouraged by prizes in that department in which they are acquiring knowledge, and in which alone they are capable of exhibiting it.

In future years a rich harvest may be expected from the fertilizing influences now inbibed, and which will be sure to exert an elevating influence upon Art in this great centre of manufacturing industries, where there is such a field for its development.

The Board of Managers of the Belfast School of Art, agreeably to a resolution passed at a special meeting, held on the 19th May, decided upon the list of local prizes, to be awarded at Christmas, 1871.

In addition to the local prizes here offered, pupils are entitled to compete for Studentships, Scholarships, Medals, and other Prizes given by the Science and Art Department, South Kensington; lists of which, and all information relating thereto, may be had from the Secretary, or the Head Master, at the School."

CONDITIONS OF COMPETITION.

I.—The Local Prizes to be open to all Pupils in the School.

II.—A fair average attendance, and satisfactory conduct on the part of each competitor for the previous six months, are essential.

III.—All Designs to be conformable to the established rules of the School, or to special conditions that may be made for each Prize.

IV.—Prize Designs shall remain the property of the Pupil. Should, however, the Pupil be in the employment of a Manufacturer or Producer, the ownership of the Prize Design shall be subject to arrangement between Pupil and Employer.

V.—Designs must be entirely the work of the competitor.

VI.—Unless a sufficient number of Designs of adequate merit, of each class, are offered for competition, the Committee may withhold the Prizes.

VII.—Prizes to be awarded under the direction

of the Board of Managers of the Belfast School of Art.

VIII.—Drawings or Designs that have previously obtained Prizes shall not be eligible for competition.

The prizes will be awarded for proficiency in the following subjects:—Geometry, Machine and Architectural details; Freehand Ornament; Outline and Human Form—from Flat—from Cast; Outline and Detail; Animal Form, do.; Flowers, in Outline, from copies and from nature. Modelling—Prizes for Designs; Designs for Damask; Designs for Printed Goods; Designs for Embroideries; Designs for Architecture; Designs for Linen Ornaments; Designs for Engraved Silver Card-case.

Lastly, the Head Master purposes to give a prize for the best attendance during the year, which prize will consist of a valuable work of art. The cash prizes range from £5 down to 10s. in the different departments, but the collective amount to be awarded is quite sufficient, perhaps, for the beginning, and will, no doubt, induce a keen competition amongst the pupils.

We again repeat that the action of the Board, and its position in Belfast, will be productive of lasting good to the Northern Athens. The report is well printed.

The Pocket Estimator for the Building Trades.

By A. C. Beaton, author of "Quantities and Measurements." London: Lockwood and Co., 7 Stationers'-hall Court.

To begin with the beginning, the Waistcoat Pocket Estimator—intended chiefly for the operatives and small employers in the building trades—will fulfil its intentions as a ready reference and useful assistant for prompt and approximate calculations. It is really a useful technical little finger-volume, so we will, in technical language, describe its Lilliputian dimensions. The outside measurement (cover included) is three and one-quarter inches long by two inches in width, and one-quarter and one-sixteenth inches thick. Now, there is scarcely any operative, or builder, or clerk of works whose waistcoat pockets are under four inches in length of slit, or less than three inches in depth, and we have descended to this minutiae for the purpose of showing how compact in size is this useful little volume. From the work of the excavator at the foundations, to that of the slater on the roof, inclusive, of course, of the mason, the carpenter, and joiner's work, we have ready methods of calculation. The work is more particularly useful to carpenters and joiners than the other trades. The value of the little "Estimator" is enhanced by the work of the different trades being priced at the present value of materials and labour. The little volume is illustrated with several cuts, and we have no doubt but that to many it will be found, at a pinch, trustworthy and serviceable. Notwithstanding its small size, the type is sufficiently large, and the cuts equally well rendered, for sight and reference. We perceive that the author is preparing a "Pocket Technical Guide and Measurer," to be uniform with the present work.

Quacks and Quackery. By F. B. Courtenay, Member of the Royal College of Surgeons of England, &c., &c. London: Baillière, Tindall and Cox, 20 King William-street, Strand.

Mr. F. B. Courtenay, who was the first courageous individual who unearthed and fearlessly exposed, at much personal sacrifice and peril, the villainous burrow of miscreant quacks abiding in London, in the *Medical Press and Circular*, has brought out a new edition of his letters, with additional information. The pamphlet is a most valuable one; and the great sale of the former editions of it, despite the cold shoulder shown by some of our popular newspapers (?) has proved its telling effects.

We consider that Mr. Courtenay deserves to be classed amongst our sanitary reformers

for his manly and Christian efforts. He has run the gauntlet of threat and threatened prosecution, but has not been scared from his work. Public philanthropists, ministers of the Gospel, journalists not yet dead to shame, law officers of the Crown, medical officers of health, fathers of families, guardians and instructors of youth, read this pamphlet, for the information it conveys will be most useful to you all. Particularly we would say to those whose criminal folly feeds and keeps alive the foul and noisome nuisance, read this pamphlet, and inwardly digest it, with the view of using its revelations as a safeguard for the future; or read it not, but careless of the advice, rush headlong down in guilt and shame "to depths accurst," unwept, unpitied, and unpardoned.

This pamphlet of Mr. Courtenay's cannot but effect reform, and is certain to deal a severe blow to the incarnate system of demoniac traffic which the laxity of English laws has allowed to take deep root in our midst. We must thank the author for his recognition of the IRISH BUILDER, the first paper of our co-labourer—*Guerre à l'outrance*—being introduced in this new edition. We can promise the author our earnest assistance—for whatever it is worth—freely in the task of not only hunting down, but in extirpating, root and branch, the miscreant medical quacks of Great Britain and Ireland.

GREENORE RAILWAY AND HARBOUR WORKS.

THE progress made with the above works during the past year has been such as to cause us some surprise on a recent visit. The appearance of the Greenore of to-day is vastly different to that of some three years ago, when the lighthouse and coastguard establishments were almost the only buildings to be seen near the place. Now, however, the once bare strand is alive with engineering and building operations. The greater portion of the masonry of the pier is completed, and the erection of the railway station, goods store, and hotel are being proceeded with; as also a range of substantial dwellings for officials connected with the railway company. A contract has been entered into with Mr. Craig for the conveyance of water from an adjoining stream, for the use of the residents of this new town.

If the long talked of railway from Newry to Greenore—a great portion of the land for which the owners have long since been compensated—were constructed, it would act as a feeder to the traffic between the latter place and Holyhead, and would also shorten by several hours the journey between that and Belfast. At Greenore harbour there will be a depth of some 20 feet at low water, thus allowing of the arrival and departure at all hours of the commodious steamers now being built for this trade.

With respect to the Dundalk and Greenore line, we may say the permanent way is entirely laid. Some delay was caused by the settlement in the foundations of the long span iron bridge over the Ballymascanlon estuary, but it is now put to rights, and presents, as does also that over the Dundalk river, a neat appearance. It is expected that the works at Greenore will be completed about May next, when the line will be opened for traffic. One word of praise is due to the contractors, Messrs. Connor and Olley, and all concerned, for the progress thus far made.

CORRESPONDENCE.

STAMPING OUT THE VERMIN.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Perhaps you will think it worth while to acquaint the public with an interesting little arrangement which has been carried on in this quiet suburb for some months past. Last May I was appointed curate of this parish, and as I possessed medical qualification which appeared in the

announcement of my licence to the curacy, I cannot help connecting that circumstance with the fact that about the same time the following advertisement began to appear in different papers:—

"Health a Boon to All.—Those suffering from depression of spirits, confusion, headache, blushing, groundless fears, unfitness for business or study, failure of sight and memory, fear of insanity, may hear of means of removing their sufferings by addressing F. Sylvester, Esq., P. C. Curate, Church-end, Willesden, Middlesex, who has cured a great number of his parishioners, by means adopted. Enclosed stamped envelope."

I only found this out a few days ago, and knowing that there was no such gentleman residing in the neighbourhood, I made enquiries at the post-office with a view to disclaiming for myself the credit of having so generously attended to the bodily ailments of my numerous parishioners.

Judge of my surprise on learning that a gentleman was in the habit of calling twice a week in a carriage and pair, for a harvest of letters in answer to the above advertisement; of which letters, I had the satisfaction of counting some twenty-seven, which had accumulated towards the next instalment.

Leaving your readers to make their own comments on the sagacity of the advertiser, and the astuteness of his confiding correspondents,—I am, Sir, &c.,

H. COURTENAY ATWOOL, M.A., M.D.,
5, Church-road, Willesden, N.W.

[The wolf in sheep's clothing is unmasked and has got his "ticket of leave" from Willesden. We are on his trail, and neither he nor his companion in infamy will have the least mercy shown to them by us. Honest Englishmen, and Irishmen, "Stamp them out!"]

SANITARY PROGRESS IN THE CITY AND PROVINCES.

FROM the provinces evidence still reaches us of some useful sanitary measures, and also of unabated nuisances which we trust will be speedily stamped out. The Borough Surveyor of Drogheda is giving his attention to the wants of the town. Sewers are being completed, and plans supplied for further construction. The town pumps are reported in good working order, and the registered lodging-houses are reported to be in a fairly satisfactory condition. This is as it should be. The Town Commissioners are not all agreed as to the expense to be incurred, but we would remind them as one of their own body has done, that proper sewers and a system of good drainage is a prime consideration, and cannot be neglected save to the danger of the health of the inhabitants.

In Naas the Workhouse sewage question is still agitating the minds of the Commissioners. Mr. Brett, the Surveyor, has made his report, in which are suggestions for meeting the evil of which the town complains. He says:—

"I beg to submit a plan of the workhouse, showing the lines of intercepting sewers referred to in my letter. The sewage to be dealt with—except that from board-room water closet—is altogether liquid sewage; the quantity is not considerable, not more on the average than 500 gallons per diem. After careful consideration I have to suggest—1. That the liquid sewage be conducted into a large covered tank, containing say 5,000 gallons. 2. That a double action force pump be connected with the tank. 3. That a cast iron delivery pipe be laid from the pump to the summit of the workhouse field, so as to discharge the sewage into an absorbing pit or into irrigating drains. 4. That a cesspit of the ordinary kind be provided for the board-room water-closet. I believe the works proposed as above would effectually prevent the pollution of Millbrook stream. I estimate their cost at £300. If permission be obtained to discharge the sewage into a field north of the workhouse premises the estimate may be reduced £50 to £80, besides getting rid of the necessity for pumping."

From Castlecomer rather unfavourable news reaches us of the spread of fever. We do not at all marvel at this when we have

learned that the water supply of the town is so foul. The town fountain receives its supply from three springs, which are receptacles of all sorts of nuisances, animal and human, and decayed vegetable matter. The water supply should at once be remedied and a new source opened. Not the least difficulty stands in the way. The medical officers have very properly performed their duties, and so has the sanitary officer, in directing public attention to the filthy condition of the present water supply. The workhouse medical officer has also, as well as the dispensary ones, efficiently discharged his duty in this respect.

Fever cases are still reported in the City, and obdurate landlords are being summoned. We must utter our condemnation at once against the system of legal quibbling adopted when nuisance cases come before our city magistrates. We don't want a legal battle about how many "coats of whitewash" are sufficient to disinfect a "fever den;" we only care to be informed that it is pronounced uninhabitable by a sound medical authority; and when this is done, such piggeries should at once be closed.

At the northern divisional police court on Saturday, the landlord of three houses in Bedford-street appeared on summons issued by the Public Health Committee. The houses were set in tenements, and occupied by four or five families in each. Mr. Boyle, C.E., Sanitary Inspector, stated that—

"He visited the houses referred to, and had absolutely to fly from the abominable stench and filth of the place. The yard of the first was an accumulation of manure, which was one sea of floating nuisance to the depth of 10 or 12 inches, coming in over the hall and the back rooms, and, in fact, flowing clear over the lower part of the house, so that it was impossible to enter it undefiled. The sludge even came to within a yard of the front door. Speaking as a professional man, he could say that he hardly ever met with such a case for blood poisoning before. The next house was nearly in as bad a condition, and in the third house the sanitary accommodation was very imperfect, and the sink of the yard had got in under the floor and splashed up between the joints of the boarding whenever it was walked over."

The landlord was ordered to pay a penalty of £3 in each case.

Our streets and alleys are yet far from being properly cleansed, and north and south of the Liffey the streets are often impassable from mud, and the deep ruts are so plentiful that one is inclined to believe that the Corporation allow them to exist to show strangers how fond the Irish people are of studying geology—"strata and drift."

It is purposed to take in the slob-land situated between Blackrock and Williamstown, for the purpose of making a "People's Park." A meeting is to be held in a few days with the object of confirming the proposal.

Presentments have been passed for the first instalment towards the improvement of Essex Bridge. Carlisle Bridge improvement is still a bone of contention. The citizens of Dublin are shamefully humbugged over this transaction, and respectable native architects have reason to complain. The Corporation in striving to outwit the public are being outmanœuvred themselves. But of this more anon.

DRAMATIC CRITICISM GOING TO THE DOGS.

THE following precious *morceau* appears in one of our Dublin morning contemporaries:—

MRS. JOHN WOOD.—This popular actress, whose reputation in London is of the highest, and who takes rank as the first of burlesque actresses, is to appear (with the entire company of the St. James's Theatre) on the occasion of the opening of the new "Gaiety." Amongst the characters she will sustain are two which have been received in the English metropolis and the provinces with great favour, *H. R. H. Pocahontas*, in the burlesque of "La belle Sauvage," and *Mary Maybud*, in "Poll and Partner Joe." Of her performance of the latter character one of the leading journals says:—"Mrs. John Wood, in the character of *Mary Maybud*, acts with delightful drollery, dances, not only nimbly, but with joyous

aplomb, and sings a variety of strange songs with infinite zest and humour. Her rendering of the best songs in the piece "His heart was true to Poll" obtained a treble encore.

Who told the critic that Mrs. Wood's reputation was of the highest? and which is "one of the leading journals?" Is it the "*Era*," in whose pages every common-place actor and music-hall dancer may criticise his own performance, *sub rosa*? Get ye out, ye critics! When will the "free list" be entirely suspended, press and all included? Will the new Gaiety begin the desired reform? An answer is desiderated.

NOTES OF WORKS.

The New Primitive Wesleyan Methodist Chapel, Kingsland Park, was formally opened, and dedicated for Divine service, on Tuesday last, the 24th ult. The foundation stone was laid about twelve months ago by Frederick Stokes, Esq., J.P. We have already described the building in the columns of the IRISH BUILDER. Mr. John McCurdy was the architect, and the Messrs. J. and W. Beckett, South King-street, the contractors.

The large range of farm-offices at Whiteleys, Ballymore-Eustace, partially destroyed by fire a short time since, are being rebuilt. Mr. J. J. Lyons, architect; Mr. Casey, Great Britain-street, contractor.

Extensive alterations and improvements have been recently effected in the establishment of Messrs. Heyden and Co., North King-street, under the direction of Mr. Lyons. Mr. Luke Doyle, builder.

A tastefully-designed house of business has been completed on Berkeley-road, for Mr. Byrne. Mr. Lyons was the architect; Mr. Casey, the builder.

The town of Skerries having been found extremely defective in its sewerage arrangements, it was determined recently by the Sanitary Committee of the Balrothery Board of Guardians to remedy same; and accordingly plans, &c., were obtained from the Board's Architect, Mr. Lyons. The tender of Mr. Mathew Echlin, of Rush, was accepted. The same architect and builder respectively were engaged on the new Gothic chapel and other improvements in the Workhouse, which were completed to the satisfaction of the Board. We believe this step of the Board taking sanitary reformation into its own hands is in the right direction, and that the enlargement of the operations within the circle of the Union is very much needed, especially in view of apprehended epidemics.

TENDERS.

For alterations and additions to Lisbeg House, Ballygawley, County Tyrone, for George Vesey Stewart, Esq., J.P. Mr. Fitzgibbon Louch, C.E., architect, 45 Donegall-place, Belfast. Quantities by Mr. J. M'D. Bermingham, Belfast:—

Cherry, Loughgall	£922	1	3
M'Cammond, Belfast	820	0	0
Laird and Keith, do.	789	0	0
Collen, Portadown (accepted) ..	725	0	0
Archier, Caledon	720	0	0

For the erection of farmstead, together with alterations and additions to the stable offices, and other works, at Ballygawley Park, County Tyrone, the seat of Sir John Marcus Stewart, Bart. (exclusive of stable and cow-house fittings); also for the erection of three dwelling-houses at Ballygawley. Mr. Fitzgibbon Louch, C.E., architect, Belfast. Quantities supplied by Mr. J. M'D. Bermingham, Belfast:—

Richard Cherry, Loughgall	£2,748	0	0
Wm. M'Cammond, Belfast	2,800	0	0
John Archer, Caledon	2,550	0	0
Laird and Keith, Belfast	2,428	0	0
John Collen, Portadown (accepted) ..	2,350	0	0

For the erection of a villa residence on the new avenue, Malone Park, Belfast (exclusive of plumber, ironmonger, painter and glazier's work). Mr. Fitzgibbon Louch, C.E., archi-

tect, Belfast. Quantities supplied by Mr. J. M'D. Bermingham, Belfast:—

J. and J. Guiler, Belfast	£1,184	0	0
D. Murray, do.	1,014	0	0
Wm. M'Cammond, do.	900	0	0
John Moore, do. (accepted)	825	8	0

For the stonecutters' works, &c., in the erection of a memorial in the town of Keady, County Armagh, to the late William Kirk, Esq., M.P., D.L. Mr. Fitzgibbon Louch, C.E., architect, Belfast. Quantities supplied by Mr. J. M'D. Bermingham, Belfast:—

John Collen, Portadown (accepted) ..	£340	0	0
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MISCELLANEOUS.

THE FREE PUBLIC LIBRARY AT DERBY was formally opened on the 19th ult. by the mayor and corporation. The institution embraces a lending and reference library, library of specifications of patents, reading rooms and news room, museum, &c. The number of books in the lending library alone exceeds 8,000 volumes. The total number of volumes is over 13,000. Mr. Bass, M.P., gave books amounting in money value to about £400; Alderman Barber gave £50 towards the purchase of books, and the mayor of Derby £20. Mr. T. W. Evans has also generously given £500 towards a building fund.

OLD BIBLES.—Eighteen copies of the first edition of the Bible ever printed are still in existence. They were printed in Metz between the years 1440 and 1445. Mr. James Lennox, of New York, owns one of the copies, having purchased it at a cost of 3,200 dols.

POPE AND SWIFT'S LETTERS.—Students of all literary history, and more especially such of them as are interested in the life and writings of Pope, will be glad to hear that no less than seventy letters written by Pope and Lord Orrery, disclosing the secret history of the publication of the "Pope and Swift Correspondence," have been accidentally discovered at Lord Cork's by the Rev. W. Elwin, and they appear in the eighth volume of his edition of Pope, which will likewise contain about 230 other unpublished letters.—*Notes and Queries.*

ASPHALTE PAVING.—The following conditional resolution was adopted by Committee No. 1 of the Corporation, and directed to be submitted to the Town Council for approval, viz.:—"That the offer of the Limmer Asphalte Company be acceded to, as follows, and to the following extent only, viz.:—That about 1,250 yards be laid down in Grafton-street, towards South Anne-street, and that if, after six months' trial, it be approved of, it shall be paid for in ten annual instalments, at the rate of 1s. 9d. per yard per annum, the company to maintain and keep the same in repair for the first three years free of charge; this arrangement to be without prejudice to any other arrangements by the Corporation in relation to any future work of a similar kind with this company." The Limmer Asphalte Company, we may remark, have already laid some thoroughfares in London with their material, on the north and south side of the Thames. Its concrete basis is somewhat similar to the Val de Tavers, but in the preparation of the asphalte material and its laying it differs.

BAMBOO PAPER.—The Consul-General at the Havana has recently called attention to the enormous quantities of fibrous vegetables which the island of Cuba produces. Some paper-makers have made experiments, it is said with success, on the fibre of the bamboo, and on some of the creeping plants indigenous to the island. The bamboo has been devoted to the service of literature as long as the papyrus itself. More than two thousand years before the Christian era, the conquerors of China signalled the establishment of a new dynasty in the Flowery Land by a conflagration of the national records. These documents were written on plates of bamboo. How far they went back, takes us almost beyond the flood. The dynasties of Yu, Chang, and Chen, had inscribed their records on bamboo plates for a thousand years before their barbarous destruction under the reign of the Thsin kings. Books of this primitive nature may be seen amongst the curiosities in the King's library at the British Museum. But to use the plant, not as wood, but as paper, to tear asunder the durable and jagged fibres not only that they may be felted together in a finer and closer union—to supersede the toil of the *chiffonnier* by that of the cane-cutter—is a new application of an old material. It would be of great utility to those who are making experiments of this nature on the utilisation of vegetable fibre, to make themselves acquainted with the mode and the materials of manufacture now used in Japan. Paper, in that wonderful island empire, serves purposes un-

known in literary Europe. It is hard as papier-maché, or soft and delicate as cambric. It is there used for manufactures as diversified as they are numerous.—*Art Journal.*

TO CORRESPONDENTS.

ARCHITECTURE AND CIVIL ENGINEERING.—One or two inquirers are informed that a practical work on the above subjects is preparing for publication, and will shortly be issued, by R. A. Sprigg, London. It is intended as a comprehensive and useful reference book for the use of architects and engineers.

THE NEW MORGUE.—The old Savings Bank and Emigration Office, in Marlborough-street, has found its fitting purpose at last. It was nearly always a dead house and a dead end to several landlords and tenants. Of its usefulness at last, no one will dispute the question. The Corporation assisted in the opening, but we hope we will not have to chronicle defect and lack of sanitary efficiency before long.

GEORGE THE IVTH'S MONUMENT IN DUBLIN.—The only monument of a public kind we are aware of, erected to the memory of George IV. in this city, takes the form of an iron bridge, commonly called the King's Bridge, which crosses the Liffey near to the Great Southern Railway Terminus. A monument was projected at the period of the King's visit to this city, in 1821, but the subscription not amounting to the sum that would be required, the money was eventually devoted to a more useful and desirable improvement.

CIVITA EBLANA.—Procure Speed's Map of the old city of Dublin, executed about 1610. It is attached to some of the old histories of the city, and may be found appended to one or two of the Royal Dublin Society's publications issued early in the present century. Compare Speed's map with the one issued by Wilson in this city about 1796 or 8, and, lastly, compare them both with the most recently issued plan of Dublin. Read "Hollinshed's Chronicle," Harris's and Walsh and Whitelaw's histories of Dublin. When you have done this, you will know a little more about the rise and progress of Athlith, or "the town built upon hurdles."

THE NEW JUNCTION RAILWAY SCHEME.—The Corporation very properly refused to sanction a scheme that would have destroyed the beauty of the Liffey and her *boulevards*. We cannot see why that tunneling cannot be performed, and performed effectually, to carry out the branch scheme of four three principal railway directors.

PAT.—Our comic countryman should have sent his epigrammatic epitaph to *Zuzimus*:—

Epitaph on a Quack.

Here lies notorious Killbyquack,
"A perfect cure," stretched on his back.
Let his grave be one dead level,
To show he's seen with the d—l.

SIR TOBY BUTLER.—The monument of this celebrated Irish lawyer is crumbling away in St. James's churchyard. Perhaps we will give an engraving, with a description, in an early issue, and possibly in our next a translation of the lengthy Latin inscription on his monument.

T. D.—Received.

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

THE *Morning Post*, speaking of Benson's Watches in the Exhibition, says:—"The collection of watches shown by Mr. Benson is a large, and at the same time an interesting one, and considerable attention has been paid by the exhibitor to the decoration of the cases. Many of them are extremely elegant in the designs, and were the results of prizes offered by Mr. Benson to the pupils of the South Kensington School of Design." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watches from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches, clocks, jewellery, chains, &c. (free by post for two stamps), contains a short history of watch-making, with prices. It acts as a guide in the purchase of a watch, and enables those who live in any part of the world to select a watch, and have it sent safe by post. J. W. Benson, Ludgate-hill, and Old Bond-street London.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

RATES OF SUBSCRIPTION TO IRISH BUILDER.

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The Irish Builder.

VOL. XIII.—No. 286.

Architecture in Ireland, and its Patrons—
Past and Present.



THE early part of the eighteenth century witnessed the modern uprise of architectural taste in Ireland, in the construction of a better class of mansions for our resident nobility; and as the century wore on, public buildings began to be erected of a more classical and ornamental type. The third decade of the last century had almost arrived before our resident nobility, except an odd member here and there, bethought themselves of enlisting the services of either foreign or native architects of ability. Indeed our native architects of ability early in the eighteenth century were very few indeed, and a great many of our so-called architects at that date embodied the profession of the architect with that of the builder. It was no uncommon thing in Ireland, in the present century as well as in the past, to behold the announcement over a builder's yard—"Mr. So-and-so, architect and builder," and perhaps the additional information was furnished—"repairs neatly executed," "country jobs and orders attended to." Punctuality and despatch of course were guaranteed in every case by the modest architect, who combined the practical-minded profession of the builder in his office and yard. Under such a state of things it is not to be wondered at that the true architect had betimes a hard up-hill struggle in striving to establish a respectable practice. The builder, being his own architect, and having a smack of drawing talent, supplied the plans and specifications, as well as the estimate; and the client went to bed with the comfortable illusion that he did well in giving his confidence and his contract to his family builder. What need, thought he, was there of employing that mysterious personage ye architect—a man whose position no one rightly understood, nor who hardly understood it himself?

It took nearly a whole century during the modern revival of the architectural art in Ireland before things began to appear, in an architectural sense, in their true light. Ireland possessed, during the last half of the eighteenth century, a few very able professional architects—some of them foreigners, others natives. Their practice, however, was generally confined to the metropolis and some of the leading cities. Although they received on the whole a fair share of patronage, there was a large body of so-called architects outside these, who practised building as well as architecture. To the hands of this latter class of professionals a good deal of the design and erection of buildings in Ireland was committed; and, owing to the state of Irish society, it could not be otherwise.

Previous to the Irish parliamentary era our public buildings in Dublin, with very few exceptions, were of an inferior description in design and execution. From the advent of James Gandon and Thomas Cooley in Ireland dates our principal and most magnificent

public streets, bridges, and public institutions. With the building of the Royal Exchange in 1769 commenced our more noble list of public edifices, but many years were entered on the present century before our modern ecclesiastical structures assumed a style and form approaching to what they should be. Some of our native and adopted architects, who began the practice of their profession in the last decade of the eighteenth century, lived far into the present century. Such were Gandon, Morrison, Johnston, and a few others less known, though with good practice. It may not be amiss to name here a few of the principal native architects who practised in Ireland from the middle of the eighteenth century till its close: John Aheron, Robert Mack, Dublin; James Workman, Cavan; Thos. Ivory, Cork and Dublin; Messrs. Myers and Sproule, Dublin; William Barber, Dublin; Francis Sandys, Dublin; George Ensor, Thomas Jarrat, Dublin; John Byrne, Dublin; Roland Omer, Dublin; Michael Priestly, Londonderry; William Beaufort, Dublin; Edward Johnston, Londonderry; George Semple, Dublin; Thomas Cunningham, William Johnston, Armagh; John Morrison, Middleton, Cork (father to Sir Richard Morrison); Richard Castles, or Cassels, a German by birth, but a long practising Irish architect in Dublin, and much employed by the Duke of Leinster. These are some of the professional architects that Ireland possessed during the last half of the eighteenth century. Of the lives and practice of a great majority of these men very little is known by the public, or even by the professional architects, of the present day. It is quite probable that the majority of the names in the list we have given will sound new to the ears of our present architects in Ireland, so little attention have they given to the history of their profession.

The principal patrons of the architectural profession in the last century in Ireland were the resident nobility, the merchants of Dublin, and the Irish Parliament. The Corporation did indeed betimes patronise our native architects; and, with all their shortcomings, the olden Corporations of this city were more conservative of the honour and architectural dignity of the capital than our modern so-called "Reformed Corporation."

From 1803 till 1829-30 very few public buildings of note were erected in Dublin, and during these years the state of the building trade and the architectural profession was not a very bright one. Prisons and penitentiaries, and some ecclesiastical churches of a very barren type were erected. Francis Johnston, Sir Richard Morrison, James Gandon, and his successor, Baker, continued their practice early in the present century with some effect; but Gandon retired early from the scene of his greatest triumphs, and died in the village of Lucan about 1822. Francis Johnston continued his practice till within a short period of his death, about 1828; and Sir Richard Morrison—who also as well as Gandon and Johnston dated his practice previous to this century—did not pass from among his brethren until upwards of forty years of the present century had run its course. Sir Richard designed many gentlemen's residences and castles, and his son, William Vitruvius Morrison—who died some years before his father—was a thorough castle builder and Tudor Gothic architect. The General Post-Office, St. George's Church, and the Castle Chapel, with numerous others not necessary to mention in this review, at-

test the architectural capacity of Francis Johnston, the founder of the Royal Hibernian Academy.

Of the state of the architectural profession in Ireland during the last forty years, its principal members and patrons, of architects who have recently passed from amongst us, and of some of those who are still living, who have distinguished themselves and elevated their art in Ireland, we may speak hereafter.

IRISH AND ENGLISH BUILDING SOCIETIES.

IN our last issue we explained the *modus operandi* of one class of our building societies and their reputed advantages. Now we wish the reader to understand that we have no direct prejudice to a building society *per se*. Building societies properly constituted and worked could be made productive of lasting advantages, but they are not so conducted. Their prospectuses are in part built up of fallacies, and the whole truth concerning their working is never told. If it were, the directors and managers of them would have less funds in the bank, and their members have more cash in their pockets; or, what is still better, their money and its interest would be accumulating in a more safe or desirable investment. Messrs. Longman, the great London publishers, have recently issued a very valuable little pamphlet under the heading "Do Building Societies Benefit Borrowers?" We will partly make use of the facts in this *brochure* to show our Irish readers how these societies in general are carried on.

Let our readers compare the statement we produce with the statements put forth by our Irish Building Societies. There will be no difficulty in drawing a comparison. The prospectus of the "London and General Permanent, Land, Building, and Investment Society," thus states its case:—

"There are many engaged in various professions whose house rent may be averaged at £32 10s. per annum, but who could, by the exercise of a little thrift, pay somewhat more than this, and would readily do so if they saw that the amount would ultimately return to them, or become a provision for their families. The following example will show that this would certainly be the case:—

The price of the house may be assumed to be £300, and that the intending purchaser has in his possession, or can provide, £30 towards the purchase, and he borrows of the society £270, to be repaid in ten years; for this sum he will have to repay

£3 5s. 9d. per month for ten years	£394 10 0
To which is to be added a ground rent, say of £4 per annum . . .	40 0 0
	£434 10 0
Deduct ten years' rental saved . . .	325 0 0

The house becomes his own for . . . £109 10 0

In addition to the sum the member provided at first. Thus, if he pays the amount of his rent to the society, with the small additional sum of 18s. 3d. per month, for ten years, or a total expenditure of £109 10s. spread over this period, he becomes the owner of a house of the value of £300; whereas, if he continues to pay the rent to his landlord for twenty-one years, the tenant is not one farthing the better off.

But if this sum per month, in addition to his rent, is more than, as a prudent man, he feels justified in engaging to pay, he may borrow the money for fifteen years; in that case his monthly repayment to the society will be £2 10s. 10d., and the result will be as follows:—

£2 10s. 10d. per month for fifteen years	£457 10 0
Ground rent as before	60 0 0
	£517 10 0
Deduct fifteen years' rental saved	487 10 0
	£30 0 0

Thus, for only £30 paid to the society, and £30

the member possessed at commencing, the house, value £300, becomes his own property; the addition to his rent will have been a trifle only of 3s. 4d. per month, a sum so small that no one would find a difficulty in paying it."

Thus the society tells its own story, but there is another side to it. In this other side the reader will see the difference that takes place by the addition of interest, sundry or incidental expenses:—

If the advance (£270) be for ten years:—	
Yearly payments to the society . . .	£39 9 0
Add ground rent, rates and taxes payable by landlord, the cost of repairs, loss while empty, fire insurance, &c.	10 0 0
Gross yearly payments	£49 9 0
Deduct rent of house	32 10 0
Additional payments per annum	16 19 0
£16 19s. per annum, for ten years, with interest at four per cent. . .	£203 10 0
Amount paid at commencement (£30) with interest for ten years	44 8 0
Law and survey expenses, stamps, &c., with interest for ten years	26 8 0
Total value of payments, spread over ten years, for house costing £300 at commencement of that period	£274 6 0

Here, in addition to his rent, the purchaser pays, in the first instance, £16 19s. per annum for ten years, instead of £10 19s., and the total cost of the house is £274 6s., instead of only £109 10s. In the second instance, the additional annual payments to be made swells to £8 instead of £2 for fifteen years, and the total cost is £246 1s., instead of but £60.

Will the society explain the above, or does it consider it a trifle not worth noticing?

If the advance (£270) be for fifteen years:—	
Yearly payments to the society . . .	£30 10 0
Add ground rent, rates and taxes payable by landlord, the cost of repairs, loss while empty, fire insurance, &c.	10 0 0
Gross Yearly payment	40 10 0
Deduct rent of house	32 10 0
Additional payments per annum	£8 0 0
£8 per annum for fifteen years, at four per cent., amounts to	£160 4 0
Amount paid at commencement (£30), with interest for fifteen years	54 0 0
Law and survey expenses, stamps, &c., with interest for fifteen years	31 17 0
Total of payments spread over fifteen years, for house costing £300 at commencement of that period	£246 1 0

Looking at these figures, might not the intending purchaser ask of himself the question—Will the property I can purchase for £300 be of the value of £274 6s. in ten years' time, or £246 in fifteen years? If he thinks conscientiously it will, or if he has good grounds for believing that it will be so, let him not hesitate in his purchase. Who can guarantee that the property—which will be liable to so many risks, or even escaping those accidents—will not be much depreciated in value? If second thoughts are sometimes the best, and the wisest often, would it not be prudent for the intending purchaser to look about him for some other form of investment, where he may obtain for his savings four per cent. per annum? By these means, at the end of ten or fifteen years, he will have sufficient money saved to purchase a house, which he may call his own henceforth, without taking on himself for those ten or fifteen years all the incidental

risks and losses which house property is heir to. Besides, during these ten or fifteen years, he is not the owner of his so-called property, and he can never feel comfortable while one year's instalment remains unpaid.

We do not desire to point out to any intending member of building societies what particular form of investment outside these building societies is the safest and the best. It is sufficient for us to state that there are other ways whereby the working classes can properly make use of their savings without running extra risks, and paying too dear for their whistle, if they should be so fortunate as to live to use it as their own.

In another paper we will give further insight into the working of building societies of another description.

ARCHITECTURAL MYSTERIES AND ANTIQUARIAN THEORIES.

LET us have a half-hour's chat and exploration into the architectural mysteries of the masonic Gaols and the theories of their antiquarians in after time. Antiquity has puzzled us and our forefathers, and some of us are doing our very best to puzzle posterity. There is scarcely an Irish historian, philologist, antiquary or archaeologist thoroughly agreed on the pillar tower mystery for the space of nearly seven hundred years. From Giraldus Cambrensis to George Petrie, historians and chroniclers have had their own say, and the men who ought to have advanced a theory or cleared up the mystery have scarcely touched the question at all. In our opinion it is an architectural question, not an antiquarian—or rather a question for architects as much as it is for archaeologists or antiquarians. To get at the origin of anything, we have need to go back and dig deep; but it seems to us that the majority of the writers on this vexed question have either been building castles in air, or striving to establish a theory of their own with the aid of snatches of other men's opinions who have preceded them. Before we can hope to establish an architectural theory entitled to credence, we must give sound reasons why we advance it. If it hinges to the past, is it based on a condition of society in which it could have once found a practical embodiment? An actual building existing for centuries is a fact, not a fancy. The pillar towers are facts, but most of the theories relating to their erection are mere fancies. The theories advanced upon the subject, taken separately, may be ranged under seven heads:—

1st. That the Phœnicians built them for fire temples.

2nd. That they were built by the Christians for bell towers.

3rd. That they were used for astronomical purposes by the Magians.

4th. That they were erected for Christian anchorites to shut themselves within.

5th. That they were used for penitentiaries, or built as such.

6th. That the Druids used them to proclaim their festivals.

7th. That they were used by the Christians to keep their church plate, treasures, &c.

How are all these theories to be reconciled? Keeping them in view, however, we may reduce them at the same time to two—the Pagan and the Christian. Well, without running in a tangent to the moon in the matter of their uses, let us arrive at some data as to their builders. If built by the Phœnicians, do they partake of Phœnician architecture? If built by the Druids, what is the distinguishing feature of Druidic erections? If built by the Magians, had the Persians or other Eastern nations any architecture similar? If built by the Christians for bell towers, or for places for securing church plate and other ecclesiastical treasures, then, when were bells and belfries first used; and, secondly, is it likely that this

form of construction would be used, if they were designed for places of treasure? Supplemental to the Christian theories, we have to find out were the ancient Irish acquainted with the use of lime and mortar; what were their earliest erections as Pagans and Christians; and was it probable and possible that they might possess the same capacity as we do in the present day of appropriating the buildings of their predecessors, the first colonists, for purposes of their own—either of Pagan or Christian use.

Perhaps it would be unfair of us to answer these questions, *ad seriatim*, at this point, without first giving an opportunity to many who may not up to this moment have formed any settled opinion on the subject. For this purpose we will adduce, from a variety of sources not easily accessible to the general reader, sufficient information whereon to form an opinion, or to be guided by if he so wishes.

As far as concerns the existence of round towers in Ireland, and the historical notices of them in the works of our historians, we will commence with Giraldus Cambrensis. This historian, writing about 1185, calls them "ecclesiastical towers," which, in a style and fashion peculiar to the country, are narrow, high and round. Cambrensis was in Ireland before he compiled his topography, and, of course, was an eye-witness of their existence at the time of which he wrote. Stanyhurst, writing in 1584, does not dispute the theory of Cambrensis on this point, though he does sharply take him to task relative to other historical positions. John Lynch, a good Irish scholar and antiquary, published his volume, "Cambrensis Eversus," in 1662. There was scarcely a sentence in Giraldus's work that John Lynch did not searchingly dissect for the purpose of showing up its defects. Yet Lynch writes of the Round Towers in a vein that would lead us to believe that he agreed at least in one point with his predecessor. Lynch says, "The Danes who entered Ireland, according to Giraldus, in 838, are reported to be the authors of our orbicular narrow towers. They were called *Clochtheuch*—that is, the house of the bell." Peter Walsh, writing in 1684, says, "that it is most certain those high, round, narrow towers of stone, built cylinder-wise, were never known or built in Ireland (as, indeed, no more were any castles, houses, or even churches of stone, at least in the north of Ireland), before the year of Christ 838, when the heathen Danes, possessing a great part of the country, built them in several places to serve them as watch towers against the natives. Tho' ere long, the Danes being expelled, the Christian Irish turned them to another and much better use—that is, to steeple houses or belfries. From which latter use made of them it is that ever since, to the present day, they are called in Irish, *Clochtheachs*—that is, belfries or bell houses. *Cloc*, or *clog*, signifying a bell, and *theach*, a house, in that language."

Both Lynch and Walsh had opportunities of arriving at an opinion as to their probable origin, from the fact that Irish MSS. were plentiful in their time; but they supply us, after all, with but little evidence—little more than mere assertion; both following almost in the track of Giraldus. Molyneux, writing in 1727, devotes some consideration to the origin of the towers, but decidedly agrees with the theory of the Danish origin. He, however, wrote in ignorance of the existence of these towers in the north of Scotland. Sir James Ware only cursorily touches upon the subject, in recording the tradition that existed in his time, in some parts of the island, that they were built by the Ostmen, or Danes. Harris, in his edition of Sir James Ware's work, thinks that is impossible that they could be of Danish erection, as no similar towers exist either in Denmark or in England, though in the latter country the Danes were for a considerable time masters as well as in Ireland. Harris inclines to a belief in their anchorite uses, an idea, we believe, which was also entertained or started by Dean Richardson. Harmer, in his "Ob-

servations on the Round Towers of Ireland," printed in *Archæologia*, affords us no definite information on the subject. He draws comparisons, or brings forward evidence, respecting some monastic buildings in Jerusalem which were used by hermits, but his example was a square tower, and it appears it was also used for the purposes of a watch tower. Probably his object was to prove the Eastern colonization of Ireland, and that the architecture came from the East also. In respect to the two existing round towers at Brechin and Abernethy, in Scotland, Gordon, who writes upon the subject, records the common notion in that district, that they were originally Pictish structures; and says that he would have believed it, only such towers existed in abundance in Ireland, a country where the Picts never settled. As a matter of fact, the Scandinavians or Picts had a very early intercourse with Ireland; but as to the exact length of their settlement we are not so certain, as possibly, in the course of time, a great many of one family or race merged into another. Smith, in his "History of Waterford," 1746, adduces evidence in favour of the Round Towers being used as belfries. In his "History of Cork," printed in 1750, he inclines to the notion of their being penitential towers. To this change of opinion he seems to have been led by some Irish MS. The penitent was supposed to descend from one floor to another as his penance became lighter, until he came to the door which always faced the east, where he received absolution.

Collinson's "Account of the Round Towers of Ireland" is somewhat similar to Smith's, and Brereton, who reviewed Collinson's "Account," believes they are Irish, and neither Danish nor Pictish. Brereton discards also the idea of their penitential use. He thinks their antiquity is anterior to the use of bells. On this bell subject we will have something more to say in the course of this inquiry. Gough gives us a memoir in the *Archæologia*, but no important evidence, except his correction of Gordon's description of the Scottish round towers; and Pennant, the London historian and great tourist, ventures his opinion that these round towers could not be designed or intended for the use of belfries, from the fact that they are placed near the steeples of churches a great deal more commodious for that end. It never struck Pennant that both buildings are not necessarily coeval, and that posterity, puzzled by antiquity, and also, perhaps, pleased, appropriated what she found useful to her hands, changing, adapting and altering as best suited her civilization. General Vallancy, in *Collectanea*, thinks he has proved conclusively that the round towers are Persian structures dedicated to the fire worship of the sun. Vallancy's theory, unlike many others, is a very elastic one. Once accepting his theory, we might date these structures from as early a time as we are pleased. Dr. Milner, probably adopting the theory of Harris and Dean Richardson, agrees with the notion of the towers being of a penitential nature. He says, "It is impossible to show what other purpose they were calculated for, and that it is equally impossible to discover the vestiges of any other *cluserie* in the neighbourhood of the great chamber."

Here Dr. Milner was in the wrong, in matter of fact. *Cluserie* do exist in connexion with the Irish churches: for instance, at Kells and Killaloe, and at other places elsewhere in the country, the stone-roofed cells are proof, and supply us with evidence of their suitability for the purpose mentioned, if such was intended. Stone-roofed churches and round towers are found in many places together throughout Ireland. Ledwich contends for the Danish origin of the stone roofed churches as well as the towers. Beauford, a rather diligent inquirer, supposes these churches are the introduction of Greek refugees expelled from their native country by the usurpation of the Saracens into that part of Europe and Asia, and afterwards from Britain, by their rival Christian brethren of the Church of Rome. Beauford endeavours

to trace an identity of style between the Irish churches and the remains of the Greek churches existing in many parts of Greece, particularly in the islands of Nátolia and Zante. Vallancy and Beauford are both agreed as to the Eastern origin of Irish architecture—the former in respect to the towers, the latter in respect to the churches.

We will still proceed in bringing forward evidence as to the different theories without biasing the reader, passing over some minor authorities who have not made this subject their special study. Thomas Bell, who wrote early in the present century on the "Gothic Architecture of Ireland," visited many of the round towers and stone-roofed churches. He says, "For my own part, I see no reason to doubt of their being Christian edifices built immediately after the introduction of Christianity." Next comes Henry O'Brien, whose essay on the "Round Towers of Ireland" received a prize from the Royal Irish Academy. O'Brien's theory is the Pagan one, and the rites and uses and worship which he adduces in connexion with these ancient structures is of such a curious nature as to certainly create a smile. Dr. Petrie in some years succeeds and publishes his "Round Towers of Ireland." This work was supposed to give the *quietus* to the controversy. It won a special prize from the Royal Irish Academy, and the Irish press, with but few exceptions, accepted Petrie's theory of the Christian origin of these edifices. This theory we have already stated. Petrie, however, was not very long allowed to enjoy his honours, for some of his living countrymen savagely attacked his book, and pointed out what they conceived to be its inconsistencies. John D'Alton, who was certainly entitled to a hearing for his labours and historical researches, advances next his conclusions, which partake of the Pagan theory, moderately advocated, and without any show of bitterness to his co-labourers in the same field of inquiry.

D'Alton, with the help of native annals, goes back further than the rest of his countrymen, and adduces proofs which, if they can be accepted as truth, would go very far, indeed, in the settlement of this undying dispute. He adduces the "Ulster Annals" in confirmation of his view. These Annals mention the destruction of fifty-seven of these towers in consequence of a severe earthquake A.D. 448. He even enlists the aid of Giraldus Cambrensis, who speaks in his Topography of the origin of Lough Neagh, as caused by an inundation A.D. 65. Tradition and history speak of the fisherman seeing the *turres ecclesiasticæ*, or the round towers of ancient days, shining below the waves of Lough Neagh. D'Alton's second argument is that it was improbable that the Christians would have erected churches of wood and bell-towers of stone, thereby bestowing more care and skill on the construction of the former, and less in the erection of churches, which should be their first care.

We have now pretty well exhausted all our authorities worthy of notice who have written in favour of both the Pagan and Christian origin of these singular edifices. Let the reader weigh their worth, and see how far he can coincide with the views put forth. Let him see on what grounds he can accept the Pagan theory of their erection and uses, or how far he can believe in their Christian origin. We opine that few will be satisfied that the question can be satisfactorily settled by the evidence simply of any one of the writers we have mentioned. It will strike at once the mind of the careful inquirer that, from an architectural point of view, the question has not yet been discussed, and that it needs some deeper acquaintance with the principles of architectural construction, technical and historical, than was possessed by any of our native antiquarian writers, to properly put this vexed question in its right light.

We did not take up the question for the purpose of settling the difficulty, but of showing how the matter remains at present, and is likely to remain for some years to come.

On another occasion we will, perhaps, pursue the subject, and furnish an architectural analysis that may help, perhaps, in establishing the only view that can reasonably be received on this pillar-tower mystery, so long a puzzle to our antiquarians.

DUBLINIENSIS.

THE DILLON MEMORIAL.

THE intended memorial to the late John B. Dillon—which, like the Grattan Monument, is a long time in hands—is making but small progress. A meeting took place on last Friday, when some few subscriptions were handed in. The committee adjourned until the 17th inst. There are many of John Dillon's political admirers in America and Australia as well as in Ireland, and his co-labourers in life and friends ought to make an appeal for funds in quarters where they would be likely to meet with a response. Dublin could do much more than it has done. Our interest is one of Irish art.

"THE AMERICAN BUILDER."

FROM the *Scientific American* we learn that the premises of the *American Builder*, an illustrated monthly published in Chicago, were completely destroyed during the recent conflagration in that city. We trust the publisher of our valued contemporary will soon be in a position to resume its issue.

KILDARE CATHEDRAL RESTORATION.

RESPECTING the restoration of the above, Mr. Street's report, read at the meeting of the Restoration Committee on Thursday, places some facts before us. We learn from Mr. Street's report that to carry out a careful restoration of the whole cathedral would involve repairs of stone work, re-erection of the roofs and flooring of the nave and transepts, and the removal of the modern tower and the restoration of the old one. The work might easily, if necessary, be divided under three or four heads, *e. g.*—1. The nave. 2. South transept. 3. North transept. 4. Central tower. Mr. Street then proposed to remove all the fittings from the choir, and to fit up the eastern part of the nave for the purpose of divine service. And then, if means existed, or whenever they could be obtained, the removal of the choir might well follow. But even if it were never done the restoration of the part which is now in ruins is a work which may well be recommended, not only from a religious, but equally from an historical point of view. A few years more, and what now remains of this interesting church may have become a thing of the past. Each winter's rain and frost helps to disintegrate the very fabric of the walls, and that which is possible now may not be possible ere long. The estimated cost of the work is thus given in detail:—(1.) Nave, £1,650. (2.) South transept, £450. (3.) North transept, £1,400. (4.) Central tower, £1,500. Total, £5,000. The amount is not large, but the work is of a simple description, very free from ornament, and the cost is, therefore moderate, when one compares it with the size of the building.

The Marquis of Kildare and Dr. Chaplin, have been appointed treasurers, and accounts were ordered to be opened in the Bank of Ireland, and in several of the local banks. At the meeting we hear that the sum of £700 was subscribed.

The structure is possibly one of the fifteenth century, and the committee are to consider the advisability of retaining the Cathedral Church in the future, or to aid in forwarding the revival of the bishopric of Kildare, apart from that of Dublin. Whatever may be finally determined upon, the question of restoration is one to enlist sympathy.

THE RIVAL CENSORS.

THE *Weekly Flamboyant* and the *Morning Luminary* having crossed each other's course in revolving round the sun of their attractions in the Milky Way, a dreadful collision was the consequence. The feeble ray of thought to which the public was previously indebted to those twin censors is now all but extinguished. Toads, they say, carry a jewel of the brightest refulgence in their heads, but the tuft-hunters and time-servers of our political planetary system carry all their light in their tails. This being docked, or nearly so, little short of an eclipse has taken place in literary and political circles in Dublin. This is how the dreadful casualty happened.

"INCENDIARISM EXTRAORDINARY."

We (the *Flamboyant*) are pained to announce that the well-filled haggards and barns of Benjamin Stubble, Esq., J.P., of Drumshambo, were maliciously set on fire by some person or persons unknown, and we are deeply grieved to add that not one of the villagers, though thirty were present, offered to go for a pail or pitcher of water to extinguish the devouring element. We can hardly account for this cold-blooded indifference of the people, except on the supposition that Mr. Stubble was not an over-indulgent landlord. Rumour says that he built up a stilo that existed as a right of way to a path leading across one of his fields from time immemorial. This act of his, 'tis said, germinated an ill-feeling in the neighbourhood, that eventually broke out in the form of a disastrous conflagration.

"AN AUDACIOUS CANARD."

We (the *Morning Luminary*) are authorised by Benjamin Stubble, Esq., of Drumshambo, in person, to give the most unqualified denial to the flagitious statements that have appeared in an obscure contemporary, which, we are sorry to say, is printed in Dublin. The well-known character of that weakly print is sufficient to stamp any announcement coming from its columns at their proper worth. Were it not that we are the accepted and accredited organ of the *elite* of this city, we would not stoop to notice anything coming from such a source. Wishing, however, to vindicate an honest man's character and uphold our own,—which, we may say by way of parenthesis, is above reproach,—we now scotch the lie, and proceed upon our way, leaving the barking animal to slink back into the kennel of its inspiration—*væ victis*.

"COWARDLY LYING."

We (the *Flamboyant*) have neither the time nor the inclination to bandy Billingsgate with the harriard of the Dublin Press. Our character is too well known to need a defence. We are told, forsooth, that we are "obscure," and what if we are? our very obscurity ought to have saved us from exposure. The epithet is, however, the act of a coward who blusters, as is his wont, but is afraid to strike. What we said concerning Benjamin Stubble, Esq., needs no explanation; it is only the most vindictive and crooked intellect that could twist it into another meaning. But enough on that head. Our office was never attempted to be set on fire by our *employés*. Our founts of "brand" new type were never knocked into regular "pie." Our "galleys" were never smashed into smithereens, nor our plethoric "forms" of valuable matter sent careering into the oozy bed of the Liffey. No "chapel" of insubordinate compositors assembled and forced an entry into our "Editor's" sanctum; and, happily for his own safety, not finding him there, kicked the panels of the door through, leaving an open space as a memento of their entry; and, as if to crown their triumph, marched down the stairs and out into the public streets, singing in chorus,

"The night before Larry was stretched."

These things never happened in the office of the *Flamboyant*. We employ "regular men,"

who never commit irregular acts. We hold by our own opinions, and we still maintain them. Cease, then, viper, *Auri sacra fames*.

"Tory, Whig, Repealer, Radical confest,
The organ of whatever pays the best."

We have not room to give our readers any more samples. The above "elegant extracts" were the beginning of the collision that has shaken the city to its lowest strata. How long its effect will last it is impossible to say. The smouldering embers still continue to fly at stated intervals, and bid fair to burn until the second example of the Killenny cats is once more enacted in Dublin.

I. O. U.

THE LATE SIR JOHN BURGOYNE.

FIELD-MARSHAL Sir John Fox Burgoyne, G.C.B., whose death occurred during the past month, was born in 1782, his father being that unfortunate General Burgoyne whose capitulation at Saratoga was such a terrible English reverse in the American War of Independence. Sir John Burgoyne held command for several years in Ireland. He was stationed in this country from 1830 to 1845, and acted as Chairman of the Board of Public Works in Ireland. Under his superintendence many engineering works were executed. He was an excellent road constructor, and in one of Weale's Rudimentary Series on Road Construction a paper will be found, entitled, "Remarks on the Maintenance of Macadamized Roads," written by Sir John when in Ireland. His name and labours were prominent during the famine years in Ireland as a leading Commissioner of relief. His public career may be thus stated. He was gazetted as second lieutenant in the corps of Royal Engineers in 1798, after a thorough training at the Woolwich Military Academy; and in 1800 he sailed in Abercrombie's expedition to the Mediterranean, where he was engaged in the reduction of Malta, the operations in Sicily, and the capture of Alexandria, where he served with much distinction. In Sweden, and subsequently in Portugal, he served under Sir John Moore, shared in the retreat to Corunna, and helped to bury, "darkly at dead of night," the commander whom he loved and who had shown especial trust in his abilities. From 1809 to 1814 he took part in all Wellington's Peninsular campaigns, especially distinguishing himself at the sieges of Burgos and of San Sebastian, the latter of which he conducted in chief after the fall of Sir R. Fletcher. He had been, at Picton's express desire, attached to the Third Division; and in the combats that won it the *sobriquet* of "the fighting," he received two wounds and earned several honourable decorations. Sent to America after the first Restoration, Burgoyne gained new renown as commanding engineer in the operations against New Orleans, in 1814; but next year he missed, by some official bungling or favouritism, taking a share in the crowning victory of Waterloo, though he joined the Army of Occupation in the French capital a few weeks after the battle. In 1826 he acted as chief engineer of the expedition to Portugal; from 1830 to 1845 he diverted his energies, for which no warlike opening offered itself, to the anxious and important labours of Chairman of the Board of Public Works in Ireland. Recalled to the work of his own profession in 1845, as Inspector-General of Fortifications, by the Duke of Wellington, Sir John Burgoyne wrote his famous letter to the Duke on the defenceless condition of the country—a letter which produced an immense effect on public opinion, and awakened the nation and the Government from the lethargy of blind security into which both had been lulled by thirty years of peace. In 1851 he obtained the rank of Lieutenant-General, with the Grand Cross of the Bath. Shortly afterwards we find him entering on that portion of his military career by which he is best known to the present generation; for in 1854 he was sent to Turkey, charged with the task

of reporting on the best measures to be adopted for the defence of that country against the impending Russian attack, and in the subsequent year he played a prominent part in the operations in the Crimea and against Sebastopol, until his recall, in 1855, in deference to the popular outcry at home against the conduct of our generals. He recommended the landing at Eupatoria; was present at the Alma; suggested the flank march past Sebastopol to the south side, to secure the harbour of Balaklava as above; and, in spite of the opposition of the French engineers, insisted that the Malakoff was the real key of the defence—an opinion amply borne out by the result after he had been summoned to England. Made General in 1855, and created a baronet in 1856, Sir John also received from our allies the Order of the Medjidie and the Grand Cross of the Legion of Honour. Various civil distinctions were also showered upon him; and in 1868, on the death of Field-Marshal Lord Combermere, he was appointed Constable of the Tower, receiving also the baton of Field-Marshal and the freedom of the city. In 1821 he had married a Nairnshire lady, Miss Charlotte Rose, by whom he had seven daughters and an only son, Hugh Talbot Burgoyne, who perished in the flower of his promise, at the age of 37, in command of the *Captain*. Sir John Burgoyne's career was a long, active and eventful one; and he died at a full ripe age, unenvied and full of honours.

AN OVERLOOKED ARCHITECT AND HIS WORK.—JOHN AHERON.*

In a recent issue of the *Builder* (p. 789, ante), in an article on "Archæological and Architectural Literature in Ireland," it is stated, "There is a manuscript work in the British Museum by an Irish architect, John Aheron, entitled, 'A General Treatise on Architecture, divided into Five Books.' It consists of 176 folio pages with this epigraph, 'This book was written, and drawn in pen and ink, and finished by the 13th of April, A.D. 1751, by John Aheron.'" It was also added that the history of the writer was unknown. Since the publication of the article, we have picked up a printed copy of the work, which was supposed to have existed only in manuscript. It bears date,—"Dublin: Printed for the Author, by John Butler, on Cork-hill, MDCCLIV." Now, although the printed copy affords us little or no further personal particulars concerning the author's life, we are able, by a system of deduction, to arrive at a few items anent his practice which are of interest and which may lead the way to further discovery in relation to the author. The book is a goodly sized volume, well arranged, well printed, and illustrated with 140 plates, well engraved, and all drawn by the author himself. A list of subscribers' names begins the volume, comprising several of the most celebrated public men of his day,—lords, earls, prelates, knights, public officers, English and Irish, holding appointments under the Government in Ireland, ladies of title, architects, and several building operatives. There are also several members of the Universities, including Oxford, and some authors who then and afterwards were known to fame,—Philip Dormer Stanhope, Lord Lieutenant of Ireland, and known as Lord Chesterfield; Edmund Burke; The Earl of Mornington (The Duke of Wellington's father or grandfather); Dr. George Stone, Primate of Ireland; Richard Boyes, Earl of Cork and Burlington; Henry Howard, Earl of Carlisle; the Earl of Abercorn; Dr. Delany and Dr. Dunkin, friends of Dean Swift; and numerous others. The list of names throughout goes to prove that Aheron was well known, and received a fair share of patronage. In his preface the author acknowledges his indebtedness to the Earl of Burlington who perused the work before it was put to press, and gave it his entire approbation. Aheron laments the sudden death of his patron while the plates were under the hands of the engravers. We

* From the *Builder*.

will give a short epitome of the matter of the volume. The first book is devoted to arithmetic, geometry, trigonometry, in view of the practice of both military and civil architecture. The second book treats of architecture in general, with many useful tables for charges and estimates, and also in relation to materials. The third book contains "A Parallel of Architecture," or a collection from ten of the principal authors who have written specially of the Orders. The fourth book contains several designs for doors, windows, chimney-pieces, piers, gates, entrances, temples, pavilions, &c.; and the fifth and last book contains a great variety of plans and elevations for parsonages, farmhouses, manufactories, charter schools, country parish churches, and even palaces; also a number of designs for gentlemen's houses, at a cost ranging from £500 to the large sum of £100,000. The treatise is supplemented at the end by a useful "builder's dictionary."

The author spared no pains throughout his work to make himself understood, and to give the best specimens of the Orders from the works of Palladio, Scamozzi, Serlio, Vignola, Alberti, Viola, Perrault, Le Clerc, and others. He also enters into a criticism of their respective merits, suggests improvements in the arrangement of the columns, and differs in some respects from the generally received canons laid down by the above authors. Among his designs there is one of Stradbally Hall (or House), built for Pole Cosby, Queen's County, Ireland. There are also the plan, elevation, and section of a house designed for a Mr. James Cotter, in the County of Cork. There are many of the designs which bear a striking likeness to several of the old public buildings of Dublin, and the gentleman's mansions in that county and other parts of Ireland. The drawings on the whole show a decided superiority to the general class of designs of the period in which our author practised, about the middle, or earlier, of the eighteenth century. We think it may be fairly concluded, from the nature of the designs, that the majority, or a great number of them, were erected. The following explanation in table of contents to plans 83.4.5 would lead us to suppose it was erected or designed with a view to erection:—

"The plan and elevation of a palace extending 407 ft. in length and 215 ft. in breadth, in the middle of which is a circular court, 87 ft. diameter, with an arcade and columns of the Doric order, and supporting a gallery of the Ionic order, whose circumference is 324 ft., whose breadth is but 12 ft., which ought to be 18 ft., but the court could not afford more without making it too small; the rooms on the first floor are 21 ft. high, and those on the second, 23 ft. Here are the angular courts which light the inner apartments."

All of Aheron's designs are severely Classic. In the concluding paragraph of his preface the author rather modestly observes,—

"Though I have presumed, for the benefit of young beginners, and those who are yet strangers to architecture, to compile this Treatise, wherein I am chiefly a collector of other men's works, except in the designs, I do not pretend to more infallibility than others, who are liable to commit errors in their calculations; therefore, if I have committed any in mine, I hope the candid reader will spare censuring me, or bringing my judgment in question for the same."

It would be well if some of our overlooked architect's successors and copyists showed a like modesty in respect to their abilities and designs. From the list of his patrons, we conclude that Aheron practised for some time in England as well as in the sister country.

In the manuscript preface of his book in the British Museum, there is an erasure at the end of the preface, through which the name of "Sir Edward O'Brien, baronet, Dromoland," appears. On referring to the list of subscribers in the printed volume, we find the name of the "Right Hon. William O'Brien, Earl of Inchiquin," a member of the same family. It is plain from this that he was employed by the O'Brien family, in the County Clare, or other of the southern counties of Ireland, where this family held large properties.

Of the date of our architect's birth or

death, we are still in the dark, but perhaps this scant notice will help to further inquiry relative to the life and practice of John Aheron, architect.

BOOKS RECEIVED.

Designs for Monuments, Headstones, Mural Tablets, and Churchyard Crosses, &c. By Frederick Rogers, architect. London: R. A. Sprigg (formerly Atchley and Co.), 106 Great Russell-street.

THIS work, on its publication, supplied an acknowledged want. Works of a similar nature were, indeed, previously published, but the designs were chiefly of an elaborate ornamental description of ornamentation and enrichment sometimes run mad. However many of them might answer the purposes of the wealthy, they were altogether unsuited for the exigencies of the humbler or less favoured classes. In this work Mr. Rogers supplies sixty original designs studied from ancient models, not imitations, but preserving the spirit that characterised them. In many of our modern London graveyards, and here in our chief Dublin cemetery, there are descriptions of monuments, mural tablets, and memorial crosses, simply a disgrace as works of modest sculpture, vulgar, rough hewn, and unshapely, and entirely destitute of art, save of the most clumsy kind. Glasnevin Cemetery certainly possesses a few good examples, but they are very few compared with the large mass of mural monstrosities that abound, frightful to behold, and insulting in their brutal details. And in the churchyards of the English metropolis the general character of the monuments and tombstones is disgraceful to the art of mural sculpture. The very modest and barren tablets of the poor are outrages against taste and decency. Leaving aside the general tenour of the epitaphs, which also need a reform in their composition, the execution of the headstones is mere masonic slop or scamped work. The rotten and friable nature of the stone used renders the inscriptions on these headstones illegible in a few years. The inscriptions are barely sunk below the surface of the stone; and the effigies, wherever they appear, are perfectly idiotic, and demoniacal instead of holy or angelic looking cherubims grin at you with a malicious leer, or with cheeks that seem swollen with a chronic toothache. Lambs look wolfish as they bear their cross; and the doves are certainly tumblers or carrier pigeons, and, judging by their beaks, they could caw better than coo. The ornamentation of the more pretentious kinds of monuments are but little better: sculpture it is not, handiwork it certainly is, and of the most ordinary description.

Mr. Rogers gives us really some simple and artistic forms in his book of designs well suitable for general adoption. Many of his mural tablets are excellent, and his churchyard crosses are unexceptional in style. His Memorial Cross is good, and his memorials in oak and wrought iron are well worthy of being imitated.

We may remark in these pages that Ireland for several centuries produced specimens of memorial or ecclesiastical crosses perfect in their kind. Those at Clonmacnoise and Monasterboice, gigantic though they are in comparison to modern single crosses, are invaluable as works of art and as historical heirlooms. Models of those ecclesiastical and monumental crosses of the Irish may be seen in England at the Crystal Palace, and we believe at Kensington, and elsewhere. Minor crosses, reaching from four to six, eight, and twelve feet, may also be seen plentiful in Ireland—some quite simple, others highly ornamented. We would like to have found a few studied designs from these Celtic crosses introduced into Mr. Rogers' book of designs. What he has designed, however, is excellent, and is to be commended by men of taste and feeling. We would like to see clergymen of different denominations paying a little more attention to

the subject of mural monuments and design, and leading the way to a development of a healthy taste. The eternal *fecit* confronts us in every graveyard we enter; and to some of the attempts at stone carving it is attached it ought in all conscience to have acted as a ghost to the perpetrator to scare him into an everlasting obscurity.

We would advise all monumental artists who have not yet purchased Mr. Rogers' book of designs, to purchase it for their own credit's sake; and to every rector in every parish in Great Britain the possession of the book would be found of service. We are not sure we would be safe in recommending the work to the directors of cemeteries, or to the general run of undertakers who cater for the wants of the living and the dead. Directors of cemeteries in general pay more attention to charges than to the character of the monuments erected, and they are more economical as to space than particular as to how it might be best occupied with respect for the dead or the improvement of their trust.

In conclusion, we can cordially commend the book to the attention of those to whom it appeals, and who are desirous of reform in all that appertains to monuments and memorials of the dead.

A Holiday Run by Rail and Road in the West and South West of Ireland. By Isaac Latimer. Plymouth: J. Latimer, Frankfort-street.

THE matter forming this interesting little work was first published by the author in the form of letters in the *Western Daily Mercury*, Plymouth, of which paper, we believe, their writer is both editor and proprietor. There are about eight letters altogether, under the following headings:—"A Trip to Powerscourt," "A Run across Ireland," "A Run into Connemara," "An Oasis in Connemara," "On through Connemara," "The O'Donoghue's Blessing at Killarney," "Innisfallen and its Abbey," "The Connemara Excursion."

The visits made, the home friends met with, the scenes encountered, the beauties, improvements, and neglects witnessed, the conversations listened to, and finally, the impressions felt by the author during his holiday tour, are here portrayed with a genial and facile pen. It is plain the author did not visit Ireland to laugh over her wrongs, fancied or real, or amuse his English readers with broad caricature or burlesque of the "wild Irish." We question if there are many English provincial journalists, or metropolitan ones, who would have presented their English constituencies with such fair pictures of Irish life and character.

The author is a man of broad views and liberal sentiments; in fact, a man of the world. He can appreciate what is good wherever he meets with it; and where he is forced to censure, we believe he does so from conscientious conviction. The blemishes in his little work are trivial, and his mistakes are indeed small, in matters of topography or of Irish names and places. Knowing this country as we do, her history and her most noted haunts, and being acquainted much with the localities which our author has described, we must allow that he is wonderfully accurate in his statements. Many of our native guide-book compilers would need to have read up before they attempted guiding others. Mr. Latimer happily hits off, in his short, racy sketches, Irish life, landscape, and character as he met it in his several journeys, in a most agreeable way. No beauty is passed by unobserved, and he seems to have had a keen eye for catching at scenic objects, unfolding their charms in the distance, and of photographing them, before some newer intercepting mountain or valley vision appeared in sight.

In Dublin, at Kingstown or Bray, he can realise a panorama of bay, coast, or mountain scenery. In Wicklow, he can do justice to Powerscourt and its Waterfall. In Sligo, he can appreciate its lakes, loughs, and islands, and the charming drives that lead to its famous waterfalls. In Connemara and the

Western Highlands, he is ravished and entranced; for the weariest desert has an oasis, and so has Commemara. Galway and its hotels, Claddagh and its fishermen, Glendalough and Lough Corrib, with its beauties and associations, all come in for just tribute from a generous Englishman.

The improvements being carried on by Mitchell Henry, Esq., the Member for Galway, are noticed at some length by Mr. Latimer; and the gardening operations, on an extensive scale, carried on at the Pass of Kylemore, meet warm commendation, and deservedly so. At Coug, the restoration of the old Abbey by Sir Benjamin Lee Guinness, and the continued benefactions and improvements of Sir Arthur, are mentioned in a most generous and genial way. One or two hotel-keepers are graphically described, and we have no doubt that the pictures are in the main correct. Justice is, however, rendered to the civil and obliging manner that distinguished all of that body with which our author came into contact on his holiday run.

At Killarney our author enjoyed himself, for who could not enjoy himself amidst such a labyrinth of weird, wild, and witching scenery of lake, island, and mountain? Impressive and sights out and about Innisfallen and its Abbey end the little work.

We must add that Mr. Latimer, in his descriptive sketches, is nowise oblivious to commercial and manufacturing objects wherever they presented themselves on his way. He notices commercial wants here, and ruin and desolation there; points out where advantages exist, where resources might be utilized, and industry evidenced, in adding to the prosperity of the people. We think the author acted well in visiting this country and seeing things through his own eyes and not through other people's "green goggles," who act their "own correspondents" at home in a garret or pot-house in London, and indite letters from Ireland, made up from some Irish paper possibly a week old.

In his preface the author indulges in a hope "that these sketches will have the effect of inducing many to visit a country in the welfare of which all Englishmen have a national interest. Of one thing they may be assured, that for a succession of wild, magnificent scenery, there are few places that will be found to come up to and scarcely any to surpass, the Western Coasts of Ireland."

In conclusion, we trust that many Englishmen will take Mr. Latimer's advice. If they do there will soon be less prejudice felt across Channel, and no more occasion exist for fabricating wanton, wicked, and mendacious statements reflecting upon the character of Irishmen, and their much-libelled country.

The following, received as we were at press, will be noticed in our next issue:—

"Picturesque Architectural Studies," by W. Young, architect. Parts 2 and 3. "Proposed Scheme for Utilizing the Sewage of Richmond," &c., and "Proposed Irrigation Schemes for Utilizing the Sewage at Kingston-upon-Thames," &c., by Clement Dunscombe, C.E., Borough Engineer.

A CLAIM ON THE IRISH BAR.

ELSEWHERE in our issue we have given some historical particulars relating to the monument of Sir Toby Butler. Before going to press we felt desirous of again visiting St. James's Churchyard, for the purpose of making ourselves thoroughly acquainted with the condition of the monument in question. It may be simply described as in a state of ruin. On the left hand side it shows clear and unmistakable evidence of dropping asunder, and if some attention is not shortly paid, the monument will be one mass of ruin. Surely here is a memorial that the members of the Irish Bar, no matter what their creed may be, would find an interest in maintaining. We can hardly doubt for one moment that if the matter were placed before them they would, one and all, cheerfully subscribe the neces-

sary funds to put it in proper repair—a few pounds would suffice.

We trust that we will soon be enabled to announce that some action has been taken in the matter, and that the monument of the chivalrous, once-famous, and patriotic Irish lawyer is being rescued from danger. It is not a question of sect or party with us, but one which we hope interests all Irishmen alike—the preservation of our national monuments.

THE INDURATION OF MORTAR.*

MODERN builders have hitherto failed in producing mortar which equals in tenacity that which we find in the structures of by-gone ages, and this we attribute in a great measure to their want of attention to well-known laws. If ordinary lime is exposed in its crude state either to atmospheric influence, or saturated with too much water in the process of slaking, or permitted, no matter how well prepared as mortar, to set too rapidly, a very large percentage of its cementing powers are irretrievably lost. Ordinary limestone, or what is termed carbonate of lime, exists in its purest state in statuary marble, and it becomes more or less debased† according to its admixture with foreign substances, until at length it approaches our calp formation; hence we find that different quarries produce great variation of quality, therefore, to produce a strong lime, the necessity exists for selecting from good specimens. Carbonate of lime, after undergoing the process of calcination, is converted into what is technically called hydrate of lime, and everyone ought to know that the induration of mortar is caused by the gradual conversion of hydrate of lime into its original basis, in conjunction with its affinity for grasping silica or pure sand in its surroundings. Now, in order to produce good mortar, and in obedience to natural law, this process must be carried on slowly, almost imperceptibly, and which is produced in the absorption of carbonic acid gas from the atmosphere by the water contained in the mortar, which re-converts the hydrate of lime into its original carbonate, and the more gradually this is effected the better becomes the cement. Hence it is that all porous material, as place brick, and even ordinary mountain granite, when perfectly dry take what is called no bond, and the mortar used with them will pulverise to the touch, because this rapid absorption of the water contained in the mortar destroys its power of imbibing the carbonic acid gas of the atmosphere, which, under other circumstances, would have acted slowly but incessantly upon it.

We frequently find the following clause occurring in architects' specifications—"The entire of the lime to be used in the plastering to be run into putty, and afterwards mixed with sand, in proportions as before described." We know this practice prevails extensively in England and on the Continent, and is intended to prevent the blotches called blistering, which occur from portions of the lime remaining unslaked. In making mortar from putty this cannot occur, as the lime being completely saturated in water, and rendered deliquescent, the most minute particles become thoroughly pulverised in the process; but our purpose is here to show—although the rapidity with which modern buildings are erected demand this sacrifice—that durable mortar cannot be made with putty, for the simple reason that, even as-

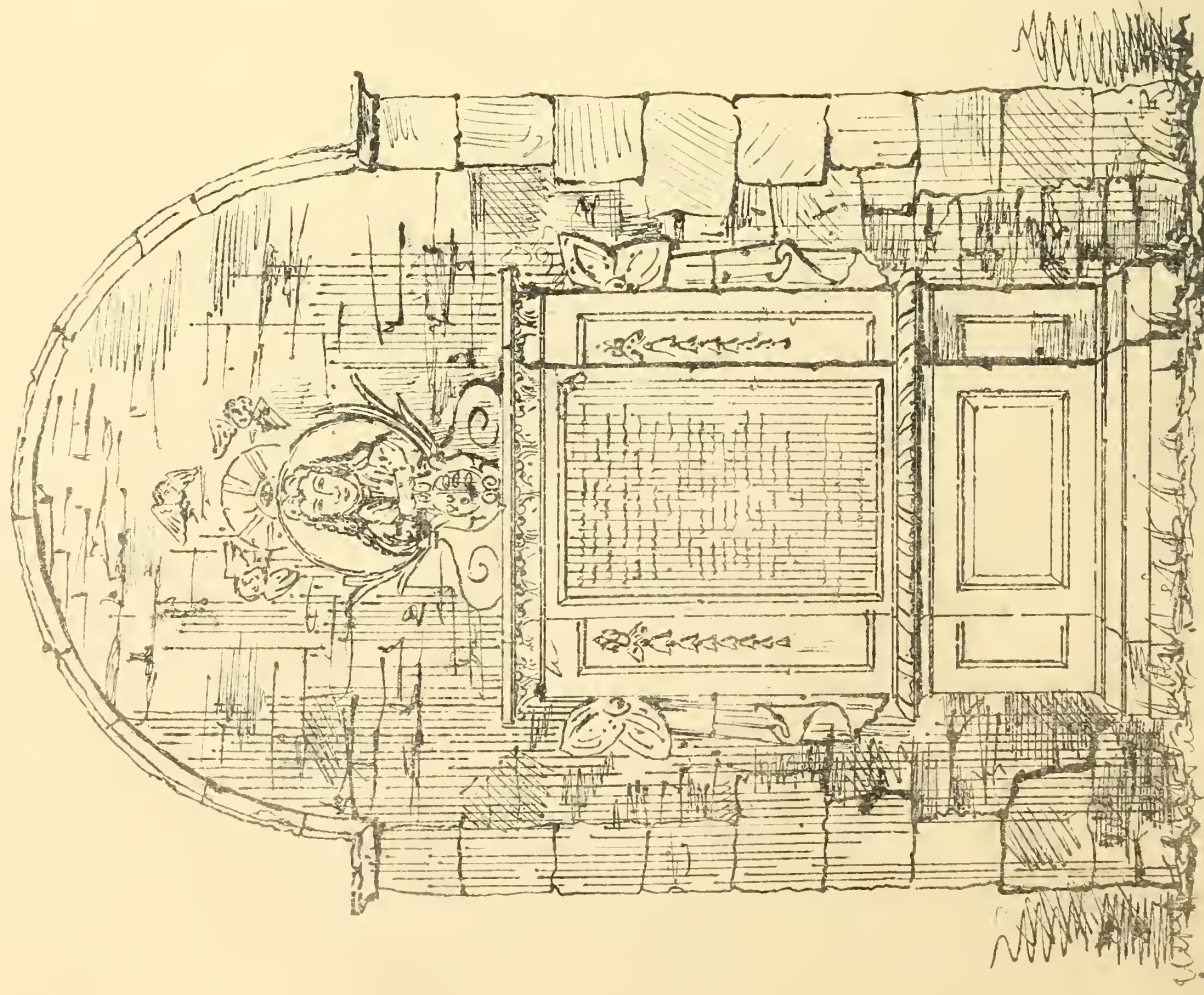
suming, for argument's sake, the theory we have here propounded of its having already absorbed carbonic acid gas to be incorrect, it becomes impossible in practice to so thoroughly incorporate it with sand, as to permit no greater quantity of lime remaining in contact with it than is necessary for the production of a durable cement. For example, let a piece of plaster be removed from a wall which has been prepared from putty mortar, and its section will invariably show either the lime in streaks, or small globules, varying in quantity according to the degree of care exercised in tempering it—showing thereby it has never been properly amalgamated with it. It needs not our showing to prove that putty when thoroughly dried is never indurated to any extent; and we are strongly of opinion it should never be applied except to its proper use—the coating of walls and ceilings—because here it re-acquires by its combination with plaster of Paris what it has already lost by its thorough saturation in water. In support of the argument we have advanced we will quote from an able and learned writer of the last century (Dr. Rutty, Essay Natural History, Dublin, 1772,) the following:—"For the best sand for mortar is the sharpest or that which has points and corners in it resembling salt in form, and seems in some sort to hurt the hands when rubbed between them. Now the quantity of lime necessary to temper up a mortar with such sand should be no more than what runs into the interstices of those grains of sand when their corners or points are linked one into another; by which means it is solder that ties together the bodies of those grains, and makes the whole mass compact; and it is plain that the interstices between these angular parts are less than the body of the sand, and, therefore, that a less quantity of lime should be used; but if a greater quantity of lime be put in than is necessary to answer this end, it then keeps asunder those points and corners that should link and bind into each other, being the principal seat of the cementing quality, the lime being no other than the glue or solder that ties them together." From what we have already attempted to show, and which agrees with the quotation we have given, we consider it a mistake to prepare mortar from putty. Experience has taught us that mortar used in any form is only durable when slaked in the usual manner, because it has then no opportunity of too rapidly imbibing carbonic acid gas; but for plastering purposes it should be allowed to remain in heaps, and occasionally tossed over for perhaps a couple of months, and so prevent blistering. Unfortunately it happens when failures occur from improper preparation of mortar, or its use with absorbing material, it is the builder who is held responsible. Although we have many highly-educated builders, they are not, as a rule, supposed to be thoroughly acquainted with scientific information; but even assuming that they may be, the specification, instructions, or sanction of the architect under whom they are executing works, or most probably being limited to time in their contracts, forbids the exercise of their own judgment. We have a recent case of this description before us, which will probably become a subject for future investigation; but we refrain for the present from particularizing it.

We commenced this paper by allusion to ancient mortar, and we cannot better conclude than by giving another extract from the work of the learned Dr. Rutty, at the same time premising that the grout which he mentions was used immediately upon the slaking of the lime, without giving it opportunity to be deteriorated by atmospheric influences. At page 24, vol. ii., Dr. Rutty thus writes:—"The binding qualities of the cement used by the ancients in this kingdom appears in many of the old castles, and is a matter of admiration, the mortar standing the waste of time and weather equally with the stone whereof they are built. Now, I have observed in examining closely into the walls and mortar of these old buildings, that

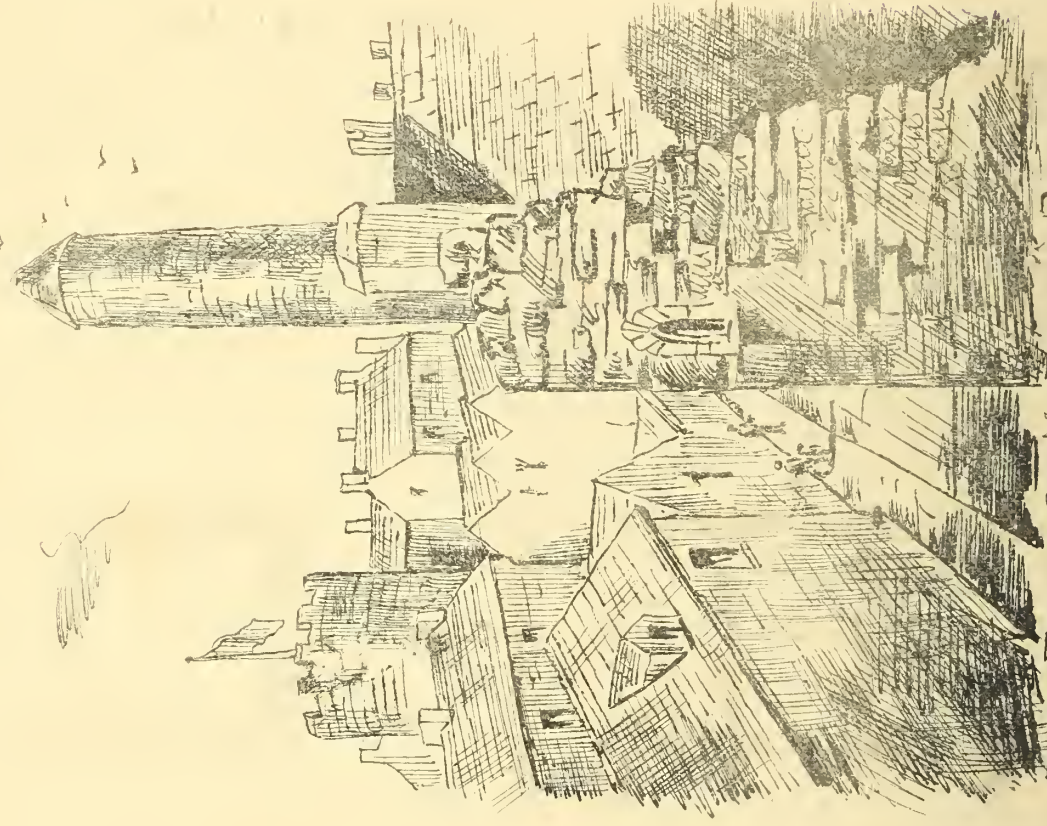
* Specially written for the Proprietor of the IRISH BUILDER by William Hughes, Esq.

† Carbonate of lime is produced by petrification, and by this means many foreign substances become imbedded in it. Shells are very frequent, and many of them, when removed, exhibit perfect specimens of existing species. Dr. Rutty states, upon the authority of Reaumur, that "the basis of many stones is mud hardened by a petrifying juice." As we have written above, white marble is the purest example, but stalactite, which is commonly called spar, and sometimes chalk, have been proved equally pure, because each of these substances can be dissolved in spirit of nitre, leaving no residuum. In the coarser descriptions of lime, stone, clays, and many mineral substances, occur in abundance; these, when burned, produce what is called the clinker, ashes and waste.

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TOMB OF SIR THEOBALD BUTLER



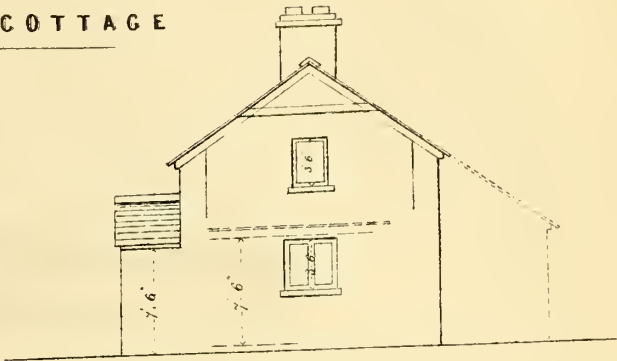
ROUND TOWER, ST. MICHAEL A POOL

PLANS OF COTTAGES
Erected on the Estate of His Grace The Duke of Leinster.

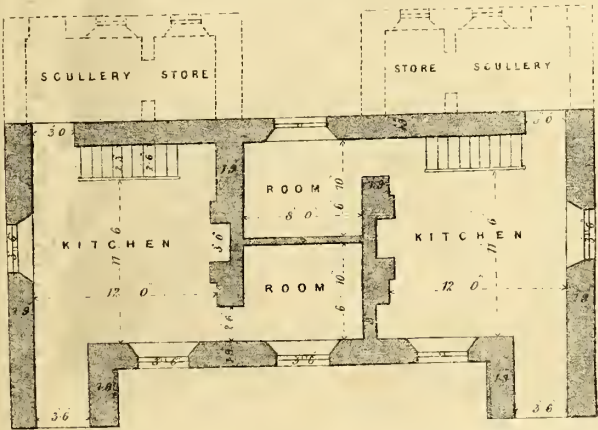
DOUBLE COTTAGE



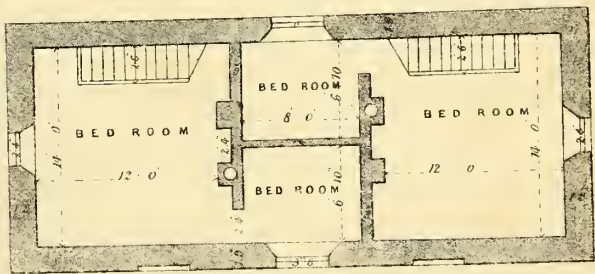
FRONT ELEVATION



END ELEVATION

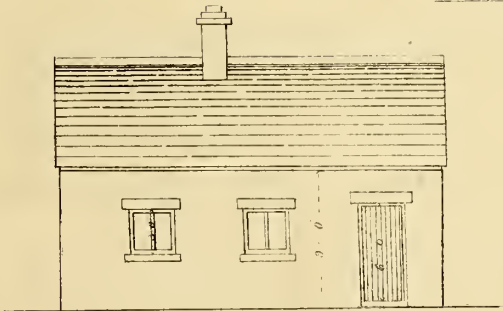


GROUND PLAN

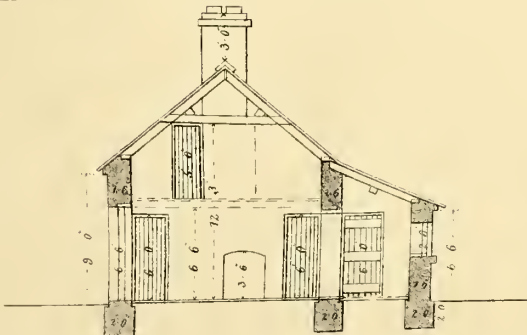


UPPER PLAN

LABOURER'S COTTAGE

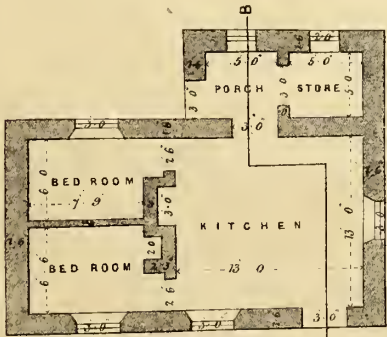


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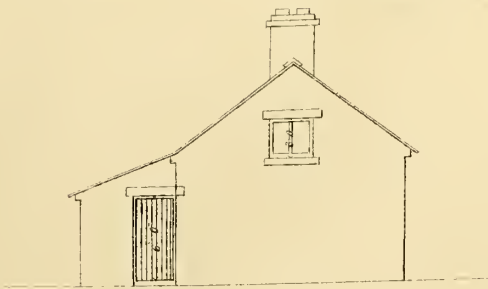


SECTION THRO A B

NOTE - Girders to Roofs over Kitchen
Loft over Bed Rooms
Parties to Roof over Loft



PLAN



END ELEVATION

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the ancients used what we call grout in their walls, *i. e.*, a liquid made up of the sharpest sand and lime, and in every course of the masonry this liquid is poured in and fills up all the cavities which are between the stones; the mortar being then fresh and moist unites and causes the whole to enclose and bind about the stones in one compact mass, and as the wall gradually dries the more strong the cement becomes."

This is possibly building for generations yet unborn. The rapidity with which modern structures are erected may possibly forbid our imitation of the ancients; because, as Dr. Rutty well observes, at p. 25, these buildings were uninhabitable for some time from their dampness; however, a medium may be adopted, and probably at no distant day we may be induced to learn the constituent and cementing properties of mortar from his teachings.

The theory we have advanced, which asserts the durability of mortar which is only permitted to set slowly, is easily proven by observing the hardness which sea sand produces when lime is prepared with it, which, although altogether unfitted for internal use, for the reasons we shall give, forms one of the most binding cements for external purposes—not, as is gradually supposed, from its entire absence from loamy particles, but from its impregnation with salt, which counteracts the effects produced by being used with absorbent material. Salt, when exposed to atmospheric influence, becomes deliquescent from its thorough affinity for moisture, which causes it gradually to imbibe the denser particles of air. Thus it is sea sand, by its almost continuous accumulation of carbonic acid gas and consequent prevention of too rapid setting, renders it unsuitable for use internally, but externally forms one of the best examples of highly indurated mortar.

PLANS OF COTTAGES, ETC., NOW BEING ERECTED ON THE ESTATE OF THE DUKE OF LEINSTER.

We give this week the ground and upper plans, with front elevation and end section, of a double cottage; also the plans and sections of a labourer's single cottage, forming part of a series of farm-houses, tenants' and labourers' cottages, now being erected by the Duke of Leinster, under the direction of Charles W. Hamilton, Esq., his Grace's agent. The dimensions are marked on engravings, and scarcely need any explanation. In respect to material and labour, and the general execution of the work, we gave some general details in our last issue, which also hold applicable to the present buildings.

It will be seen on reference to plan No. 2, that a scullery or store is contemplated, and we think it is both needed and desirable. In labourer's cottage, No. 4 plan, it will be seen by the sections which we give, that a loft is provided for over the bed-rooms—an accommodation which Irish cottagers and labourers appreciate much, for they are prone to construct lofts themselves for storage in their ruder sort of dwellings, even if the original designer never contemplated it. We may mention that concrete has been much availed of for various uses in connection with these buildings and their out-houses. Cement concrete was laid over foundation walls, and Portland cement concrete has been used in the formation of the floors in kitchens, porches, and dairies, with concrete skirtings.

The estimate for contract for double cottage was put down at £191 0s. 6d.; and if store and scullery were desired, £39 5s. 7d. additional; for single cottage, £94 6s. 5d. As we will probably give the plans of the out-offices, cattle-sheds, &c., in a future issue, we will defer description until then. We have little more to say at present than to reiterate our opinion that these new dwellings on the estate of the Duke of Leinster is a step in the right direction, no matter what may be their shortcomings in matters of detail.

It is a humiliation to us in this country

to be forced to look on the barbarous human dwellings which are scattered through every county in Ireland, unfit for animals to live in, and tending to undermine the morals of the people. The huddling together of whole families in miserable rooms, where sleeping, eating, and general living knows no change or undergoes no new conditions save for the worst, is a state of moral and social degradation terrible to contemplate. Nothing but a faith that could remove mountains, and a firm belief in a higher power, could have saved a large portion of our population from extinction. Their hovels were a disgrace to the age, but they were themselves not to blame. Had they landlords in general like the Duke of Leinster, our people would have grown up a nation of builders instead of excavators. Degradation causes a race to burrow instead of build. The uprise of architecture is the uprise of national morals and social comfort.

RESTORATION OF CHRIST'S CHURCH CATHEDRAL.

The work of restoration at this cathedral is proceeding smoothly, and in a very careful manner, under the clerk of works, Mr. Dooling. The entire of the wall of north aisle has been removed, and the roof shored up. The nave arcade on the north side is also shored up, to allow of the present insecure piers being cut away, and replaced with new ones of the same section. We are informed that close upon one hundred tons of timber have been used in this shoring. The masonry will be rubble, with Caen stone dressings, and the execution will partake much of the character of the best portions of the old structure.

With the commencement of the spring, the work will be pushed on with additional energy, and prosecuted without any pause till its completion. Of course some months must elapse yet before progress to any great extent can be reported, as a good deal of preliminary operations have to be got through in clearing away and preparation.

The care with which Mr. Dooling is preserving examples of the art-work of our forefathers, and which are being turned up in excavating, is worthy of all praise. Already he has collected specimens of encaustic tiles of various patterns and in all colors. He has had rubbings and sketches taken from many of them; their inspection will, no doubt, prove interesting to the antiquarian.

The late Sir Benjamin Lee Guinness and Mr. Henry Roe have set an example in Church restoration in Ireland that many similarly circumstanced might imitate with dignity and profit. Their example, we are glad to see, is producing its fruit in other parts of Ireland on a small scale—work which is commendable from every point of view.

OGYGIA VINDICATED—CELTIC PROFESSORSHIPS.

It gives us great pleasure at any time to be able to report aught concerning the preservation of our national monuments or native tongue, and we hope that the Todd Memorial will live long as a memory and a benefit to the Irish race. At a meeting held on Friday last, at the Royal Irish Academy House, W. Cotter Kyle, LL.D., in the chair, the report of the treasurers, Messrs. Hardinge and Gilbert, showed that £883 1s. 9d. had been applied in the purchase of £954 14s. 6d. New Three per Cents., that there remains a balance of £90 6s. 8d. in the Bank of Ireland, and promised subscriptions still unpaid, £40 14s., making £1,020 available towards endowing the professorship after payment of all expenses. On the proposal of Samuel Ferguson, V.P., R.I.A., seconded by J. R. Garstin, treasurer of the Academy, it was resolved to request the anonymous donor of £100, deposited conditionally on a like sum being raised by the 1st instant, to extend the time for endeavouring to secure his generous offer, the amount to meet it not being yet completed. Subscriptions having been

handed in, the meeting adjourned. There is little doubt but that the generous donor will consent to the request made upon the part of the Royal Irish Academy.

THURLES CATHEDRAL AND ITALIAN ART.

A TABERNACLE has arrived from Rome, and is about to be placed in this cathedral. Now, without any disrespect to the Catholic Archbishop of Cashel, we think his lordship might have given the order to some of our resident artists. The money that pays for it was subscribed in this country. If there were no artists in Ireland capable of executing this work of art or handicraft, we would not object. Ireland and Irish art cannot afford to suffer in this ignoble manner!

OBITUARY.

DEATH OF JOHN BOURKE, ESQ., ARCHITECT.

We greatly regret having to announce the death, suddenly, of the above-named gentleman, which took place on Friday last at the residence of Dr. Hayden, Harcourt-street. Mr. Bourke had been for some time complaining, but no serious symptoms appeared, to cause uneasiness or account for his sudden demise, being in his usual health on that morning; but in the course of the day, finding himself unwell, he proceeded to his medical adviser, when in a few minutes he ceased to live. In his profession Mr. Bourke was greatly esteemed by those with whom his associations brought him in contact. Gifted with talent of a high order, and particularly well versed in constructive architecture, he has been engaged upon numerous works throughout Ireland. Amongst these the Mater Misericordiae Hospital stands a time-enduring monument of his skill. We have often admired his specifications, which for their perspicuity, combined with brevity, could not be excelled, and which carefully express in short paragraphs what in other hands would occupy pages, yet, from their wording, were impossible of being misinterpreted. Shrewd and intelligent to a degree in all difficult questions of constructive building, his opinion was highly valued; and being of sterling honesty of purpose and of unswerving integrity, he was justice personified between contractor and client, and in this particular he had few equals, certainly none to surpass him.

NOTES OF WORKS.

M'Evoy's old hotel at Maryborough, dating from '98, is about to undergo enlargement and extensive alterations, we hear. A Mr. Gaze, an auctioneer, has purchased it from the outgoing tenant, and a number of work-people are now engaged upon the projected improvements. The cost of the improvements will reach several hundred pounds; and Maryborough will, no doubt, be benefited locally and otherwise by the change.

Extensive alterations and additions, including an increased new front, are being made at the establishment of Mr. Cornelius Mannin, chemist and druggist, Gt. Brunswick-street, for which Mr. Luke Doyle obtained the contract in a limited competition with Messrs. William Conolly and Son, Hudson, Mulhall and Tighe, builders. Mr. J. J. Lyons is the architect.

Extensive show-rooms and offices are to be erected at the depot of the Ferguslie Fireclay Works, North-wall.

The "Bleeding Horse" Tavern in Camden-street, has been purchased by Mr. Andrew Wren, and is about to be altered and considerably improved. Mr. R. Sterling is the architect.

A neat shop front, from designs by Mr. Robinson, architect, is being completed in Camden-street, by Mr. Dwyer, builder, for Mr. Kerrigan, wine merchant, &c., in same street.

TESTIMONIALS FOR DOGS.

A LONDON contemporary has treated the public to a short leader anent the rage that exists at present in erecting monuments to dogs. There is much that might be commended in the subject, but the danger lies that it may run into extremes.

A faithful dog is certainly a fast and dear friend to man, and the Mont St. Bernard dogs, of which we have all read, furnishes us with pictures of sagacity, and we might almost write fellow feeling, that must be admired and deserve to be remembered. To go in indiscriminately, or even on a limited scale, for honouring members of the canine race, is nowise desirable, when we think for one moment of the abject mass of misery, destitution, and semi-barbarism that exists in these British islands, from lack of employment, education, and the want of sanitary improvements. From having hospitals for invalid or strayed dogs, we may next arrive at having special cemeteries for their burial, where they will possibly be committed to their graves with more honour and decency than is shown to the poor working man or workhouse inmate—

"Rattle his bones over the stones,
He's only a pauper whom nobody owns."

Our London contemporary, the *Daily Telegraph*, thus writes:—

"Ireland and Scotland are about to do themselves honour by the erection of costly and tasteful monuments to members of the canine race. At Edinburgh a memorial fountain, designed by Mr. Brodie, R.S.A., at the expense of the Baroness Burdett Coutts, is about to be erected in commemoration of the exploits of a certain how-wow called 'Greyfriars Bobby.' The structure is to be of red granite, and seven feet in height. The basin, standing a few inches above the ground, is to be a drinking place for dogs; and a column, rising from the centre, will be surmounted by a bronze sitting figure of Bobby. The remaining embellishments comprise the Arms of the City of Edinburgh and of Lady Burdett Coutts, and a bronze plate inscribed with the records of Bobby's achievements—excluding the fictitious ones. What those achievements were the Southron world has still to learn. Perhaps Dr. John Brown will enlighten us on the subject. Again, from Belfast, we learn that the famous, coursing dog, 'Master Magrath,' who three times in succession won the Waterloo Cup, is to have a monument raised to him in the demesne of Brownlow House, the residence of his proprietor, Lord Lurgan. The design consists of a square pedestal, supporting a counterfeit presentment in bronze of Master Magrath, and on each of the four sides are sculptured groups representing the principal events in the life of the celebrated animal. Dead dogs have ere now had cenotaphs to their memory. Is there not that beautiful inscription to the little pet dog, the 'delicium domi,' in the Columbarium at Rome? Does not the little dog of William the Silent crouch, in marble, at his master's feet, at the Hague? Did not Byron grave a very cynical copy of verses over the tomb of his dog Boatswain? It strikes us, however, that in the present instance, London ought not to be behind Edinburgh and Lurgan in doing honour to the 'friend of man.' We have not, in any of our public places, it is true, a monumental record either of William Shakspeare or of Christopher Wren; but cannot we erect a statue of the 'Fireman's Dog,' or of that astounding dog Billy, who killed so many rats in so many minutes?"

If we are to have monuments erected in remembrance of faithful dogs in Ireland, we have examples in our history more deserving of being perpetuated than Master Magrath. There is the Dog of Aughrin, for instance, who lives in print, but not in marble. The life, and death, and faithfulness of that noble dog can never be forgotten by the student of Irish history. If a precedent is established on a large scale in the present day, goodness knows where the mischief may end. Already in the county of Dublin a large landed proprietor—J.P. and Sir—has raised a monument in his demesne to a favourite horse, and we are not sure but he has raised another to one of his favourite hounds. We consider this sort of monumenting may degenerate into a downright and intolerable nuisance. A drinking-fountain for dogs as well as horses is a good idea. The execution in statuary of a noted or celebrated dog, who

was really useful in his day to man, cannot be objected to, or the rendering of animals by sculpture, painting, or other arts. Let us be consistent, however, in our honours, and let us not forget that there is a wide field among the human family for the exercise of our charities and honours, without bestowing them upon the brute creation, particularly in cases where they not are only inapplicable, but most objectionable.

GRANITE AND ASPHALTE PAVEMENTS.

MR. W. HAYWOOD, the Engineer to the Commissioners of Sewers in London, has published his report on the comparative merits of granite and asphalte pavements. His views throughout confirm what we have stated ourselves. We must also add that our contemporary, the *Builder*, anticipated Mr. Haywood's report by some months, and gave a very careful estimate of the advantages of the asphalte, and also offered some suggestions for its future use, with a view to greater care being bestowed in its laying. There is no doubt but the asphalte possesses various advantages over the granite pavement, and when more experience is gained, and when it is longer in use, public opinion will be the stronger in its favour. In London, at the present moment, the work of laying this pavement or compressed roadway is proceeding rapidly north and south of the city. Both the Val de Travers, the Limmer, and other companies, are at work. We subjoin here an abstract of the report:—

Asphalte Carriage-way Pavements.—The asphaltes which have been, or are about to be, laid down in the carriage-ways of the city are—the Val de Travers Compressed Asphalte, the Val de Travers Liquid Asphalte, the Limmer Liquid Asphalte, Barnett's Liquid Iron Asphalte,* Mc'Donnell's Patent Adamantean Concrete Paving; and to these may be added Granite Sets with Asphalte Joints. The Val de Travers Compressed Asphalte is composed of a mineral from the Val de Travers, a few miles from the town of Neufchatel, in Switzerland. The finished thickness varies from 2 to 2½ inches, according to the traffic of the street in which it is laid, and it further compresses and consolidates under the traffic; the company states that this compression is from 20 to 25 per cent. It is called compressed asphalte on account of the mode of laying it, and this definition should be held in mind, as it expresses a special characteristic of the Val de Travers asphalte, which, as far as I know, is possessed by no other, and which is, perhaps, the reason of its success, and why it alone has been laid to any great extent in the carriage-ways of Paris. The company, at its own expense, with the view of satisfying the Commission of the fitness of their compressed asphalte for carriage-ways in streets of much traffic, laid 485 square yards in Threadneedle-street, near to Finch-lane, in May, 1869. At the same time they laid 147 yards of liquid asphalte in the footways immediately adjacent to that laid in the carriage-way, and also at their own expense. The daily traffic at this spot is about 4,200 vehicles in twenty-four hours. The next pavement formed with it was that in Cheapside and the Poultry, which was completed in October, 1870. The price paid for the concrete was 1s. 9d., and for the asphalte, 16s. 3d., making together 18s. per square yard complete. The number of vehicles which pass over these pavements daily in twenty-four hours are—In Cheapside, west of Queen-street, about 11,900; in the Poultry, about 9,600. [Other thoroughfares laid, or to be laid, are here enumerated.] The prices, both for the new work and for maintenance in these streets, differ, and for convenience of reference the whole are given in a table further on. The company is to keep all the pavements in repair for seventeen years from the date of completion, the first two years without charge, and the remaining fifteen years at a price per square yard per annum over the whole surface, which price has been agreed upon; and the company is to leave them at the expiration of the seventeen years in as good a condition as when new.

Val de Travers Liquid Asphalte.—In March of the present year the company formed the carriage-way pavement of George-yard, Lombard-street, with their liquid asphalte, which is laid upon a concrete bed 6 inches thick, the asphalte surface being 1½ inches thick. Its superficial area is 232 yards. The price with the concrete is 12s. per square yard, and the

* The term "liquid" asphalte is used to indicate those asphaltes which are brought to a semi-liquid state by heat before being laid; French writers have named these "mastic" asphaltes.

company undertakes to maintain it for ten years without any cost to the Commission whatever. The footways of part of Gracechurch-street have also been laid with liquid asphalte by this company. The following table gives the prices to be paid for the asphalte carriage-way pavements, and for their subsequent maintenance, as well as the general conditions under which they are to be laid:—

VAL DE TRAVERS COMPRESSED ASPHALTE.							
Situation.	Concrete.		Asphalte.		Price laid complete, including Asphalte and Concrete, per yard.	Price for maintenance per square yard per annum for 15 years.	Remarks.
	Thickness.	Price per square yard.	Thickness.	Price per square yard.			
Cheapside & Poultry ..	9 1	9 2½	16 3	18 0	1 6	To be maintained by the company for the first two years free of charge.	
Old and New Broad-st. . .	6 1	9 2	14 3	16 0	0 9		
Moorgate-st.	6 1	9 2	14 3	16 0	0 9		
Finsbury-pavement.	6 1	9 2	14 3	16 0	0 9		
Gracech.-st.	9 1	9 2½	15 3	17 0	1 0		
Queen-st. . .	9 1	9 2½	14 3	16 0	0 9		
Old Bailey	6 1	9 2	14 3	12 0	0 9		
Throgmorton-st. .	6 1	9 2	14 3	16 0	0 9		
Wood-street.	6 1	9 2	14 3	16 0	0 9		
Milk-street.	6 1	9 2	14 3	16 0	0 9		
Russia-row	6 1	9 2	14 3	16 0	0 9	To be maintained by the company for two years free of charge, and after that time, the repairs to be paid for when ordered by the Commission.	

VAL DE TRAVERS LIQUID ASPHALTE.				
Situation.	Thickness.	Price per square yard.	Price for maintenance per square yard per annum for 15 years.	Remarks.
George-yard, Lombard-st.	6	1½	12 0	To be maintained by the company for 10 years free of charge.

Limmer Asphalte.—The Limmer asphalte comes from a mine situated at Limmer, near the city of Hanover, and another situated at Vorwobbe, near Alfeld, in Brunswick. The only carriage-way in this city laid with it is that of Lombard-street, which was finished on the 18th May last. The concrete in that street is 9 inches, and the asphalte 2 inches thick; the area is 1,653 yards. The price of the concrete is 2s. 8d., and the asphalte 13s. 4d., making together 16s. per square yard; the conditions as to maintenance and repairs are similar to those arranged with the Val de Travers Asphalte Company for Cheapside and other thoroughfares, and the price for maintenance after the first two years is to be 9d. per square yard per annum over the entire surface. The traffic which passes over Lombard-street daily in twenty-four hours is about 2,600 vehicles, mostly consisting of cabs or light traffic, excepting at a small portion of the western end, where a few omnibuses pass on to and stand upon it. The other specimen of this asphalte which has come under my observation is in Bernondsey-street, opposite the old church, where 320 yards were laid in the carriage-way in October last. It is formed upon a bed of concrete, 9 inches thick; the thickness of the asphalte is 2 inches; the traffic which passes over it daily during twenty-four hours is about 2,000 vehicles, of a mixed character.

Cleansing.—It is essential to the safety of the traffic that asphalte should be kept cleaner than granite, and indeed should be kept very clean. It was found more easy to clear it effectually of snow during the past winter than any other pavement in the city. The best mode of cleansing it is by the street orderly system, combined with a morning sweeping and occasional washing, and this is the mode now adopted. The high state of cleanliness renders street surface-watering unnecessary; and this is in itself an advantage, for street watering is only resorted to to prevent nuisance from the dust, and converts dust into mud, which is also a nuisance.

General Conclusions.—My general conclusions upon the subject matter of this report are:—Firstly, that asphalte carriage-way pavements afford much convenience and comfort to the traffic and to the inhabitants of the streets in which they are laid, and that they lessen the labour of horses and the wear of carriages. Secondly, that with great cleanliness and reasonable care during frost, asphalte pavements are, for the general traffic, as safe as granite; but that shortly after slight rain, and just before dryness ensues, in streets of much traffic, or when not kept clean, they are more slippery than granite, but that the duration of these periods of slipperiness is but short. Thirdly, that great cleanliness is essential to them; that they can be kept cleaner than any other class of pavement; that the cost of doing so is not much more than that of cleaning other streets; and that with proper cleanliness street watering is unnecessary. Fourthly, that an asphalte surface can be laid and repaired as quickly as granite, but requires finer weather for its proper execution; that when done, the work causes less in-

convenience than granite; that less surface need be taken up for repairs over openings, but that the cost of the repairs will be greater than that of granite. Fifthly, that the durability of asphalt will be less than granite, but in what degree there is no experience in this country to show. Sixthly, that the first cost of asphalt is about the same as granite, but that the maintenance will be more expensive in streets of large traffic, and vary according to the character of the road and the traffic over it, and that generally, therefore, asphalt will be more expensive than granite pavements. Seventhly, that asphalt will be less expensive than macadamized roads where there is much traffic, and is free from the inconveniences of macadamized surfaces. Eighthly, that with present experience it is not advisable generally to lay down asphalt in carriage-ways having steeper gradients than 1 in 60. Ninthly, that asphalt is adapted to all streets having suitable gradients, excepting those in which special or exceptional trade or business is carried on, and where it may be difficult to maintain a high state of cleanliness.

We may in our next add some further evidence concerning some other asphalt pavements now laying in London by somewhat different processes than that of the Val de Travers and the Limmer Companies. These other patents are known as "McDonnell's Patent Adamantean Concrete Pavement," "Barnett's Liquid Iron Asphalt," and granite pavements with asphalt joints. From what is above stated, we think that the Corporation and the citizens of Dublin ought to be satisfied as to the general utility and decided advantage of an asphalt pavement in our leading thoroughfares.

Laggard too often in most things, we hope that Dublin will soon set about putting her thoroughfares in decent passable order. The asphalt pavement, when once general, will reduce the yearly cost in repairs and scavenging—a heavy item at present in this city, and nearly unbearable from the fact that the streets of Dublin are never clean, though large sums have been paid for years for their scavenging and repair.

IMPROVEMENTS IN PARIS.

AMONGST other improvements, no fewer than seven new covered markets are about to be built in various outlying parts of the town, by which the cost of living will be considerably reduced for all who pay ready money for the provisions they purchase; the markets being—what the shops are not—under the orders and superintendence of the police. Still more important are the improvements introduced in the paving of Paris. During the last days of the reign of Prefect Haussmann, a gigantic job was perpetrated in Paris by some person or persons unknown. Under the pretext that the asphalt paving is too expensive, and the macadamised roads not enduring enough, they obtained a contract by which not only the streets but the Boulevards and Avenues of Paris were again to be laid down in the hoof-destroying and carriage-spring-destroying old pavement. Who made money by this contract, or how the authorities had the folly to grant it, are mysteries which perhaps will never be made known to the multitude. The present Prefect of the Seine, however, does not seem to see things in this light. He is not in favour of resuming the old system of *pave*, but has not quite made up his mind what ought to replace it. For this reason he is trying a new kind of pavement, which has succeeded very well in America. It is composed of a layer of wooden planks, saturated on both sides with a mixture of tar, over which is a layer of sand some ten inches deep; then another layer of planks at right angles to the first, on which is a second layer of sand; and, finally, a firm pavement of small blocks of wood, driven in so tight as to form one huge solid mass. About one hundred yards of the Boulevard St. Michel, over which all the heaviest traffic in Paris passes, is being laid down with this pavement, and is to serve as an experiment before the thing is tried further. The construction of the tramways, not only for omnibus traffic, but for all kinds of laden carts, is another experiment which will be tried in Paris. The

centre from which these lines are to extend is at the Halles, or central markets; and the idea is to extend them in every direction where the streets are wide enough to leave sufficient room for two lines of carriages that are not fitted for the rails. The tramways are to extend several miles beyond the suburbs, so as to be of convenience to the market gardeners and provision dealers coming into Paris. From all the railway stations these tramways are also to extend to the central markets; the leading idea being to diminish the cost of traffic, and thus by degrees reduce the price of living in the town—which is at the present extremely high, and is likely to continue so until something be done by the authorities to bring food to the centre of Paris at a cheaper rate than at present.

M. Léon Say is likely, if he can hold on to his tenure of office, to leave behind him as great a name, on account of the improvements he has set on foot in Paris, as the much-abused Baron Haussmann. Although the splendour of this city may owe more to the nominee of the Emperor than to the gentleman now holding the appointment, the usefulness of what is now being planned in Paris will far exceed anything of the kind hitherto proposed. Not to mention the wholesale replanting of the large-sized trees on the Champs Elysees, to replace those cut down during the siege and the revolt, the roads have been everywhere repaired, the edifices which were injured by shells rebuilt, and all the public gardens put in the same state as they were before the war. Even already, were it not for the burnt-down Tuileries, Hotel de Ville, part of the Rue Royale, and part of the Rue Rivoli, no visitor to Paris would believe that half of what is written has happened to the city during the last twelve months.

THE MONUMENT OF SIR TOBY BUTLER.

HISTORICAL PARTICULARS.

THE following is a translation of the Latin inscription on the monument of Sir Toby Butler, the famous Irish lawyer, who figured in Irish history at the period of the capitulation of Limerick, and whose name occurs often in the old law cases of Dublin in the latter part of the seventeenth and early in the eighteenth century. The monument is in the old churchyard of St. James, in this city:—

SIR THEOBALD BUTLER,
An Irish Lawyer,
An honour to the laws, his name, and native country.
Invested, not exalted, with the equestrian dignity,
An Advocate
Judicious, upright, polished, eloquent,
Excelling
In the legal and his native dialect,
Not in partial justice,
Not in search of favours,
Not in flattering language,
But in weight of arguments,
An innate force of genius,
And a consummate knowledge of the laws.
A Man
Whom eloquence, an unsullied faith, gravity, tempered with
much humour and affability,
Whom a sincere and virtuous course of life,
And a mind the guardian of virtue,
Sagacious to unfold the intricacies of the law,
Have raised to the summit of fame,
And had also (were it not for his religion)
Raised him, no doubt, to that of fortune.
He died the 11th of March, MDCCXX.,
Inferior only to death.
James his eldest son erected this monument to his
Most worthy Father.

We italicise the words native dialect in the above inscription, as it is worthy of notice. Sir Toby Butler's monument, we regret to say, has never received any attention, and it would be a kind thought of the Irish Bar to put it in a proper state of preservation.

We wish here to record another fact connected with this monument, scarcely, if at all, known at the present day. The epitaph is the composition of an Irish priest, the Rev. Miles Byrne, one of the order of Jesuits, born in Francis-street, Dublin. In the penal days his parents, owing to the stringency of the laws, were obliged to send him to France to receive his education. While in that country he became a member of his order,

at the College of La Fleche, in Anjou, and on the death of P. Jouvenci, he stood as a candidate, with P. Porée, for the chair of professorship of rhetoric, in the College of Louis le Grand, Paris. Although his abilities were superior to those of Porée, the latter was elected, because he was a native, though the judges declared in favour of the Irish cleric. He returned to Ireland under the assumed name of F. Milan; and, after a while, when party rancour had somewhat subsided, he opened a private school in Cook-street, in this city. The school was little more than a dreary garret. He taught his school and acted in conjunction with the Rev. Mr. Johnston, who also was a member of the order of Jesuits, and a professor of Greek and Latin. The well-known Rev. Mr. Austin, who was a noted preacher in Dublin towards the end of the last century, was one of his pupils. We do not know as we write what was the particular period of the Rev. Miles Byrne's death. We give publicity to those facts in connection with the monument of Sir Theobald Butler, knowing that they will possess an historical interest for many readers amongst our countrymen at home and abroad.

GAS MONOPOLY AND NUISANCE.

IT at last becomes necessary to know, whether the Gas Consumers' Company of the city are really an irresponsible body as well as one enjoying a complete monopoly. When we had two distinct companies in Dublin, one acted as a check upon the other's intolerance; but it seems now that we must submit, not only to be cheated, but to be snubbed if we remonstrate against a system that amounts to very little short of a public patent extortion. We think it is time to inform the Gas Consumers' Company of Dublin that there is a limit to their monopoly, and that we will put our fellow-citizens into possession of a fact, or a series of facts, that will bring the Gas Company of the city back to its whilom propriety and sense. We trust we will not be provoked to this extreme measure, but being fellow-sufferers with thousands—yea, we repeat it—thousands of our fellow-citizens, and failing to obtain satisfaction or relief, we are determined to chalk out a plan of guidance for future adoption. The Gas Company of Dublin are just now imitating the action of several of the suburban companies of London. We dare say they understand well what thinning or adulterating gas means, or not sending it forth with its proper illuminating power. Is there a properly qualified gas examiner in this city appointed by the Corporation? We know we have an able public analyst, but his duty is mostly confined to the food and drink question. The illuminating power of the gas supplied to the public must be settled for good at some fixed standard; and when the illuminating power goes below the standard let the Gas Company be sued, for they are clearly amenable to the law as well as any other adulteration of material supplied to the public. The way gas is supplied to our dwellings and warehouses at present amounts, on the part of our Gas Company, to simply obtaining money under false pretences. If there were rival companies in Dublin, we would have better light, and a little more courtesy and good breeding shown on the part of the officials of the Gas Company. If a landlord or tenant is in arrear with his gas account, his supply is very soon cut off; but this threat was not formerly held *in terrorem* over the struggling shopkeeper so often, because he had another resource, and was not obliged to bear with both insult and injury.

If we are compelled to return to the subject again, we will not make it pleasant reading to some, and we hope that the few words we have felt it our duty to say to-day will be taken as an earnest of our determination in future to cut the leading-strings of a monopoly, and exhibit the rat's terror at large.

THE CHURCH AND ROUND TOWER OF ST. MICHAEL LE POLE, DUBLIN.

THERE existed in Dublin, and but a few years since, a society, having amongst its objects the perpetuation of the many interesting records of ancient Irish architecture then in existence, as well as such as had already been swept away by the rude hands of modern innovation, or perhaps suffered to disappear, through apathy or neglect, into mouldering heaps of building *débris*, to be removed by the road contractor for mending the public ways, or utilized in modern masonry either as fence walls or more domestic appliances throughout the country. This was the St. Patrick's Society, which was established 1855; it had unfortunately but a short-lived duration. The members were men fully versed in archæological and ecclesiastical study, and particularly adapted, from their well-known research, to rescue from oblivion our many interesting monuments of by-gone ages. The St. Patrick's Society was not encouraged to the extent of its deserts, either by subscriptions or otherwise; therefore, like many other utilitarian projects, it is a thing of the past. Through the kindness of our valued friend, Dr. T. Willis, several of the papers read at the meetings of the St. Patrick's Society have been placed in our hands; amongst the rest one read by J. Huband Smith, Esq., Nov., 1855, from which we take some extracts and copy an illustration. It gives additional information upon a notice which the writer of this paper has already given in the columns of the IRISH BUILDER, viz., an account of the Round Tower and Church of St. Michael le Pole, which formerly stood in Ship-street. It will be remembered that Sir William Wilde delivered an address upon the progress of Gabriel Béranger in Ireland (before the Royal Institute of Architects, in the month of March, 1870), and subsequently published some further remarks thereon in the pages of the *Journal of the Royal Historical and Archæological Association of Ireland*, from which it is apparent he must have been unaware of the paper read by J. Huband Smith, Esq., at the meeting of the St. Patrick's Society. Unfortunately, literary emanations of this description, teaching us the history of past ages, are too often conveyed to the waste-paper basket, and thence to the nearest huckster's or tobacconist's shop. We, therefore, gladly step in to the rescue.

"Few more remarkable examples of the instability of earthly things could be adduced than that to be found in the history of the parish and church of St. Michael a Pole, both of great antiquity, and dating from a period evidently earlier than the arrival of the English invaders in Ireland, in the reign of Henry II. Adjacent to the church stood a fine example of the ancient ecclesiastical Round Towers, peculiar to this country. It was not completely taken down until within the last eighty years, when the safety of adjacent buildings made its removal necessary. In Walter Harris's edition of Sir James Ware's works, he states that Christ Church Cathedral was erected one hundred years before the period assigned by St. Bernard, in his *Life of Malachy*, for the building of the church at Bangor, viz., A.D. 1145, and he adds, that probably about the same time was built St. Michael's Church in Sheep-street, with the Round Tower adjoining it.

"It may be assumed as fact, that this church, parish, and round tower existed from a remote period, though the name Michael is not to be found in any of the calendars of the ancient Irish saints. We must, therefore, look for the name of the saint to whom this church was originally dedicated, in some one of the various Irish names which most nearly approach this in form and sound.

"The church of which the present treats, and which stood in a rising ground not far from St. Patrick's Cathedral, is not to be confounded with the other church of the same name, adjacent to the Cathedral of Christ's Church.

"The Church of St. Michael's ('within the walls'), Dublin, stood where the present church now stands in High-street and Winetavern-street, near Christ's Church. St. Michael's, *without* the walls, stood adjacent to Ship-street, and was called St. Michael le Pole, to distinguish it from St. Michael within the walls.

"I think that the name 'Le Pole,' or 'Le Poole,' originated from the church being near the pool, or mill-pond, from which the Castle Mills were worked; or possibly there was some reference to the name of the 'Polls,' 'Poddle,' or 'Polebell' River, which ran along the city wall, and from which the mill-pond was supplied.

"I have a lease made by the city in 1657 of a piece of ground adjoining the city walls, at the end of Ship-street, 'near the mill-pond, there where the water-course runneth;' and amongst the covenants of the lease is one:—'That the lessee do leave and permit the slip leading into the river, or water-course, then being three yards broad, to be in the place where it now is, and that it shall not be stopped up at any time during the continuance of the lease.'

"This is sufficient evidence of the water-course, mill-pond, or pool, and of the connexion between it and the name of the church. We may refer to one of the various modes of spelling the name, which was 'St. Michael's, of Pols,' or 'de Paludibus' (on the original drawing made in 1751); and to that of the city gate near it, which was called the 'Poule Gate,' and the passage leading to it, which was called 'the Poule mill street.'

"The round tower which adjoined the church was taken down in 1778, but some fragments of it remained as late as 1782. It was originally about 90 feet high, but in the great storm of 1775 (November) it was so much shaken that many of the stones fell out, and the centre became what is termed 'bulged,' which rendered it dangerous to the schoolhouse and to the neighbouring houses.

"The state of the tower was submitted for the consideration of the dean and chapter of St. Patrick's Cathedral, as patrons of the church, the parish having been united to that of St. Bride's in 1682. The dean and chapter consulted skilful architects, who reported, on close examination of the tower, that it could not be repaired, as any attempt to repair it, by erecting scaffolding, &c., would inevitably pull down the building.

"It appears that about the year 1738 an eminent antiquarian had applied to the Dean and Chapter for contributions to repair the tower, and that it was then scaffolded from the ground, and well pointed with stone and mortar, both within and without. These seasonable repairs preserved it for a time, but the effects of the storm of November, 1775, were irreparable.

"The tower was taken down to the level of the roof of the schoolhouse at the expense of £195s. 9d., and the stone was used to repair the wall of the churchyard and engine-house.

"The schoolhouse was built about the year 1706 by Dr. Jones, an eminent Latin master, who obtained leave to build on and convert the old walls of St. Michael le Pole into a schoolhouse, which consisted of a large schoolroom, with three small rooms at the end, and a flight of stairs in the tower leading to the upper rooms. The entire work was finished at Dr. Jones's expense, except the windows, which were furnished by Mr. Evans, his usher, who succeeded to the school after the death of Dr. Jones. After the Rev. Mr. Evans's promotion to a living in the country, the school was unoccupied for some years, but was re-opened by the Rev. Dr. Dunkin in 1738. Dr. Dunkin was the author of several poems, and other works published in Dublin. He was succeeded by his usher, Mr. Ball, who was master of the school in 1778.

"The Widows' Alms House of St. Bridget's Parish now occupies the site of the schoolhouse, and is accessible by a narrow passage, or entry, from Ship-street. Over the gateway is a neat slab bearing the following inscription—'Entrance to the Alms-house of St. Bridget's Parish, founded in the year 1683. Removed here A.D. 1787.'

"Stanyhurst calls the church 'St. Michael's of Poules, alias Pauls.'

"This parish was situated near St. Patrick's Cathedral.

"In 1682 the parishes of St. Bride and St. Michael of Pole, and a part of St. Stephen's, were united by Act of Council, and this church was used as the Diocesan Schoolhouse.

"In 1706 the chapter issued an order to Dr. John Jones that he should not pull down the monument or tower of St. Michael of Paul's, near his schoolhouse in Sheep-street.—*Mason*, 72.

"Archdall (*Mon. Hib.*, p. 150) says that 'Le Pulte-street, in the parish of St. Brigid, is now called Ship-street.' But this is inconsistent with the earlier authority of Stanyhurst, who (page 26) in his 'Enumeration of the Streets of Dublin,' mentions both the Poule and Paul mill street, and the Sheep-street, *alias* Ship-street. He also states, 'That the Poulgate Bridge was repaired by Nicholas Stanyhurst about the year one thousand five hundred forty and four' (1544).

"During the assault of the Norwegians on the English occupiers of Dublin, Harris (in his History

of Dublin, p. 224) says:—'Richard de Cogan, by direction of his brother, sallied out of the South Gate (then called Pole Gate, at the end of St. Werburgh-street), with a body of 300 horse.' . . .

"Dublin bath at this date, within the citie and in the suburbs, these churches that insue, of which the great number are paroch churches, only Christ Church, and a few oratories and cbappels excepted."

"(Inter alios) *Saint Michael of Poules*, alias *Poules*.—Description of the City of Dublin, from *Holinshed's Chronicle*.

"The *Poule-Gate Bridge* repaired by Nicholas Stanyhurst about the yeare one thousand five hundred fortie and four.—*Ibid*.

"It is remarked by Harris, 'from the records of Christ Church, it appears certain that that edifice was erected about one hundred years prior to the period in question, by Sitricus, petty King of Dublin.'

"He adds that, 'Probably St. Michael's Church, in Sheep-street, with one of these round towers adjoining to it, was built about the same time.'—(*Ware's Antiq.*, p. 134, and *Cambrensis Eversus*, p. 117). *Hist. Memoirs of Armagh*, by James Stuart, Newry, 1819. Appendix, No. III., p. 584.

"In the Appendix to an anonymous 'Life of St. Patrick,' printed in Dublin, 1810, by H. Fitzpatrick, is 'a Summary Account of Various Ecclesiastical Institutions, Orders, Edifices,' &c.; p. 241:—'Saint Michael of Poles, or a Paludibus, in Ship-street, belonged to Christ Church; its ruins still remain, and the churchyard is made use of to inter the dead.'

"A lot of ground in the parish of St. Bridget, extending backwards to the River of Poles.—*Archdall, Monast. Hibern.*, p. 161.

"On the 18th of May (1706) the dean and chapter confirmed the grant made by the minister and churchwardens of St. Bride's parish, whereby the Church of St. Michael of Pole was conferred upon John Jones, D.D., for the purpose of erecting a school there. This ancient church, which is situated near Sheep-street, had a round tower adjoining. To preserve this interesting building the chapter showed an anxiety which every antiquarian will think laudable. We observe in minutes of chapter of 23rd August, an order that Mr. Jones do not pull down the monument or tower of St. Michael of Pauls, near his schoolhouse.—*Hist. of Cathedral of St. Patrick*, by Wm. Monck Mason, b. ii., ch. iv., p. 221.

"The parishes of St. Bride and St. Michael of Pole, and a part of St. Stephen's, were united in 1682, by an Act of Council. The dean and chapter signified their consent to this union, by letter, dated 25th September, in that year. They styled themselves therein, 'The parsons and undoubted patrons of those parishes.'—*Min. of Chap.* The curate used to pay 6s. 8d. yearly to the chapter, in lieu of all their emoluments as rectors. A church, called St. Michael's occurs in the articles published in Append. No. V. It is not, I apprehend, this church that is alluded to; but I conceive it to be a mistake of the transcriber's for that of St. Nicholas.—(See note, p. 107) *Ibid.*, vol. i., p. 72, note.

"The Church of St. Bride, or Bridget, although it was granted to this cathedral by Archbishop Comin, did, in more ancient times, belong to the Cathedral of the Holy Trinity (Christ Church).—See the grant of Archbishop Laurence O'Toole, and King John's confirmation of the same, to the Cathedral of the Holy Trinity.

"A parish, which is now united to St. Bride's, viz., that of St. Michael of Pole, or *Della Polla* belongs likewise to this cathedral, and the chapter, in the beginning of the last century, granted the ancient church to John Jones, D.D., to be used as a schoolhouse. On the 23rd of August, 1706, we find the chapter issuing an order that he should not pull down the monument or tower of St. Michael of Paul's, near his schoolhouse in Sheep-street; but this order for the preservation of the ancient round tower has not been respected by his successors.—*Ibid.* vol. i., ch. xi., p. 72.

"On the south side of the church, in the angle between the south transept and the west aisle, was the schoolhouse and schoolhouse-yard. In the beginning of the 18th century, however, the diocesan school was removed to the Church of St. Michael of Pole in Ship-street.—Vol. i., p. 16, ch. iii.

"Adjoining to the south wall of the west aisle, stood the Bishop's Court; and a little more westerly in the church, the Free School of the Diocese.

"NOTE.—This school was of early foundation, but removed from hence, in the beginning of the last century, to the Church of St. Michael of Pole, in Ship-street, which was granted by the chapter to Dr. Floyd (or Lloyd) for that purpose.—*Ibid.* b. i., p. 19.

"Polegate or Poolgate,' so called 'from a confluence of water which settled in this hollow, and was often troublesome to passengers, till a bridge was thrown over it, which was repaired by Nicholas

Stanhurst, about the year 1544. In latter times, this gate has been called St. Werburgh's Gate, in regard to its situation at the south end of a street of that name, dividing the same from Bride-street, or St. Bridget's-street.—*Harris's History of the City of Dublin*, p. 71. Whitelaw and Wulsh's, l., p. 74.

"In 'Views of the most remarkable Public Buildings, &c., in the City of Dublin, delineated by Robert Pool and John Cash,' published January 1st, 1780, we find 'A plan of Dublin, 1610, as it then stood.' In the map, the Church of *St. Michael le Pole* is correctly enough laid down, adjacent to 'Sheepe-street,' and 'Crosse-lane,' now Golden-lane.

"In the same work we have 'A plan of Dublin, 1780,' but we see no trace of the church above-mentioned.

"In a 'Map of the City and Suburbs of Dublin, as also the Archbishop and Earl of Meath's Liberties, with the bounds of each parish, drawn from an actual survey made by Charles Brooking, dedicated to Lord Carteret,' then Lord Lieutenant, and dated 1738, no trace is to be seen of the Church of *St. Michael le Pole*. This map has on its margin a series of engravings of public buildings, the coats of arms of the guilds, &c. Archbishop King's arms occur in the body of it."

SANITARY PROGRESS IN THE CITY AND PROVINCES.

HERE in Dublin we cannot as yet compliment the Corporation on their energy. Some seizures of unsound food have been made, but the uncleansed state of the city is still a chronic and almost unbearable nuisance. Small-pox exists, and it is feared may increase, and it has every encouragement to do so from the reprehensible laxity of the corporate authorities. The Corporation is ever ready with statistics of a very suspicious kind for the purpose of closing the mouths of complainants; but when we walk abroad for an hour through the city, we are confronted with such accumulations of filth that at once falsifies the statements of the Corporation, and convinces us that we are only hoodwinked. There is, however, one resource left, but we hope for the credit of our city that our citizens will not be driven to resort to it.

In Drogheda the Corporation is wasting much valuable time with useless talk, and the hands of the Borough Surveyor seem to be tied. Again and again he has reported the want of sanitary requirements, and the existence of evils which continue to exist. The scavenging of the streets is unattended to. The Corporation should either arrange that the contract should be properly carried out, or employ a staff themselves to do so. At one time matters look in Drogheda as if they were mending; then again they appear to either stand still, or grow worse than before. The Borough Surveyor, we doubt not, knows his duty, and he should insist on being allowed to perform it.

In Belfast much has been achieved in the way of drainage, but much yet remains to be accomplished. The Blackstaff and the Pound Bourn are yet frightful evils, and the habitations of the poor in many districts are in very bad condition. The Queen's Bridge is about to be widened, and the engineer of the Commissioners has been instructed to prepare plans for the proposed improvement.

Several of the Town Commissioners of our provincial boards are proceeding with their sanitary measures, already reported in our columns; but there are a few northern and southern towns in a complete state of sanitary destitution. In our next we may be able to report upon their state.

Since the above remarks were written, we have found the following in the columns of a morning contemporary, and we gladly reproduce it, in order to show that a *little activity* prevails in sanitary matters:—

"We observe with great satisfaction that the presiding magistrate at the Northern Police Court, on Saturday, made an order for the absolute closing of certain houses in Church-street, and other streets in the vicinity. The action of the magistrate was not uncalled for, as must be evident to any who will refer to the report of the shocking condition in which the houses were kept. No doubt could be

entertained that they are not wholly unfit for human habitations—the basement presenting, as described by Mr. Boyle, the active and intelligent Inspector of the Corporation, a sea of pollution, which covered the ground to the depth of several inches, and oozed up through the hoards of the floor when walked upon. Before using the extreme power given by the law, the magistrate imposed repeated fines, but no effort was made to abate the horrible nuisance. Nothing can more strikingly illustrate the habits of the occupants of those miserable dwellings and the pestilential effects produced by the state in which they live than the continued disregard of the penalties, and the complaints finally made to the bench that great hardship would be inflicted upon them by the order now pronounced; because their rents are paid up, and other tenements will be closed against them on account of the prevalence of small-pox in the places from which they must remove. It is to be regretted that the process of clearing these houses is not more summary. It will take a fortnight to get the order carried out, but the measure is the only effectual one which can be adopted in such cases. As long as the owners of these horrid styes get their rents paid, they care not what state the wretched inmates may be in, but if they be held responsible, they will find means of improving the condition of the tenements and the habits of the occupants.—*Express*.

THE ROYAL IRISH ACADEMY.

THE opening meeting of the session was held on Monday evening.

THE PRESIDENT in the chair.

Dr. Whitley Stokes read a paper on the "Féire of Oengus," a poem of 2,364 lines. This ancient Irish MS. (of which Dr. Stokes presented a translation to the Academy) possessed little literary merit; but, from the purity of its vocabulary, was valuable to the student of comparative philology, revealing very fully the position which the Celtic occupied in the great Aryan family of languages.

In a paper by Mr. V. Ball he described generally the character and position in society of the inhabitants of the Andaman islands. He noticed the affectionate habit to which they were addicted of carrying the skulls of deceased relatives slung round their necks.

An interesting account was given by Mr. G. H. Kinahan of the origin, development, and arrangement of the plutonic, metamorphic, and granite rock systems in West Galway and South Mayo.

The next meeting will be held on the 30th instant.

THE CHURCH OF CLONLARA.

A SALE of pews has taken place in the Catholic Church of Clonlara, to enable the pastor to proceed with the completion. The amount realised with one or two additional donations, amounted to £400. A square tower and sacristy are to be added, the work of which will soon be commenced. The floor is to be of Minton tiles, to be laid under the direction of Mr. E. Corbet, C.E.

LABOUR AND WAGES—ENGLAND.

THE movement for the reduction of time and the increase of wages is spreading itself all over England. It is not confined to a few trades, but seems to be affecting almost every one of them.

Messrs. R. Hoe and Co., the printing-machine makers and engineers, of Tudor-street, London, and New York, have cordially responded to a requisition from their workmen, by consenting to adopt the nine hours' system on and after the 20th inst.

Messrs. Barrows and Stewart, and Mr. Lamp, engineers, Banbury, have conceded the nine hours' system to their men—the latter unsolicited. The builders of Banbury have commenced an agitation in favour of the movement.

The sawyers and skilled workmen employed in the various timber yards and steam-sawing establishments at Sheffield are agitating for the nine hours' system. One of the principal employers has already agreed to make the time fifty-seven and a-half hours per week, but the men are determined to obtain fifty-four hours. A great demonstration of the engineers' trades was held in the Temperance Hall, Sheffield, to celebrate the adoption of the nine hours' system.

A meeting of representatives of the workmen employed in Messrs. Laird's shipbuilding works, and other large establishments in Birkenhead, was held at the Birkenhead Arms in that town, for the purpose of promoting a reduction in the hours of labour on both sides of the Mersey. The meeting was numerously attended; and it was unanimously decided to organise the movement, and to form a committee empowered to propose to the several firms a reduction of the hours to nine per day. A deputation was appointed to establish common action with the Liverpool workmen.

The nine hours' movement has been started amongst the printers of Darlington, Mr. Dresser and Mr. Ibbotson having granted the concession. The binders of the former are also included, and the reduction in Mr. Dresser's case is from fifty-six to fifty-three hours.

The woollen-spinners of Huddersfield are agitating for an advance of wages in consequence of having had to advance the wages of their piecers from 10 to 15 per cent., and they have had a meeting, at which they appointed a committee to take into consideration the whole question, and to draw up a memorial to the masters.

The directors of the Great Northern Railway Company have decided to accede to the request of their workpeople at the Plant Works at Doncaster, some 2,000 in number, and will reduce the working hours from fifty-eight to fifty-four per week on and after the 1st January next.

The nine hours' system has been adopted at the works of Messrs. George Wright and Co., stove-grate manufacturers, Burton Weir, Rotherham, and will come into operation at once. Mr. Wright called a meeting of the men, and informed them that the firm had decided upon granting them the concession—without any reduction of wages—to commence at once. This is the first house in the stove-grate trade which has adopted the nine-hours' system.

At Preston the North of England Railway Carriage and Iron Company have intimated to the workmen in their employ that on and after the 1st January, 1872, their establishment will be conducted on the nine-hours' system. The men have passed a vote of thanks to their employers, and celebrated the boon by a procession through the principal streets.

Picksley, Sims, and Company (Limited), Bedford, Lancashire, have granted the nine-hours' system, without any reduction of wages, to commence the first week in January, 1872.

The owners and masters of vessels in the coasting trade from Whitehaven have conceded the demand recently made by the men for an increase of 10s. on the Cardiff round, and of 5s. on the Dublin run.

Messrs. Fletcher and Co., of Whitehaven, have signified their intention to their workmen of adopting the nine-hours' movement on and after the 1st of January next. Upon the intention of the masters being made known to the workmen, a letter, returning thanks for the generous manner in which the concession had been made, without solicitation, was forwarded to the employers.

The signalmen on the Multon, Scarborough, and Whitby lines of the North-Eastern Railway have memorialised Mr. Christison, the general passenger superintendent, for an increase of wages. The men say their rate of pay is insufficient for their long hours of service, and that, owing to the high price of provisions, they can scarcely maintain their wives and families. The wood-loaders of the North-Eastern Railway are also memorialising to the same effect, and a similar movement has been begun among the passenger guards.

The men in the employment of Messrs. Masfield and Co., Manor Iron Works, Chelsea, have memorialised the firm to reduce the hours of labour from 58½ to 54 hours per week.

MISCELLANEOUS.

INDUSTRIAL PROGRESS IN IRELAND.—We (*Freeman*) lately alluded to the intended industrial establishments in the West, and there is a rumour of a further important movement in another direction. In addition to the pottery works at Belleek, the enterprising proprietor of the estate comprising these works, has arranged for the erection of a Hoffmann kiln, for the manufacture of a cheap rate of both lime and bricks, and probably cement, the estate abounding with many and various valuable deposits, and there being already several of these kilns in the North of Ireland. For instance, between Mr. Bloomfield's property at Castlecaidwell, where the kiln will be erected, and Londonderry, a Hoffmann kiln has been recently built by Mr. McGinnis, of Strabane, viz., close to Porthall station on the Irish North-Western Railway, and both kilns will, doubtless, contribute by their produce to increase the traffic on the line mentioned, as well as on the Bundoran and Enniskillen, Mr.

Bloomfield's limestone being already prized in Derry. It is also stated that this gentleman is arranging for bringing forward his fine hematite iron ore, a description which is scarce and much wanted by the iron-masters of England for mixing with the poorer ores available on the other side of the Channel.

THE FUEL RESOURCES OF IRELAND.—Referring to the late controversy relative to the probable duration and ultimate exhaustion of the English coal supply, "An Irish Landowner," in a letter to the *Times*, directs attention to the amount of fuel which our immense deposits of turf can supply. Compressed turf is only one-fifth inferior, for manufacturing purposes, to average coal, the proportions being 25 cwt. of turf to 20 cwt. of coal; and though this fuel cannot, at present prices, compete with coal, or be manufactured profitably, any considerable rise in the value of coal would reverse the position. The writer furnishes, from his own property, adjacent to the Bog of Allen, the materials for an approximate estimate of the amount of fuel which our bogs can afford:—"The turf is more than 30 feet thick, probably much more. If we suppose an average thickness of 30ft., an acre would contain 48,400 cubic yards. In Ireland there are about 4,500,000 acres of waste lands; if only a million of these are bog of 30ft. (and many of the largest bogs are known to be 40ft. and even 50ft. in thickness), we should have 48,400,000,000 of cubic yards." That the manufacture of compressed peat would, under the circumstances referred to, be of immense national advantage is proved by the experience of Bavaria, where the successful working of such undertakings has doubled the value of estates to which considerable quantities of turf are attached.

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

TRADE CATALOGUES.—"One cannot but be struck with astonishment at the innumerable ways in which an enterprising tradesman appeals to the public with a view to increase his trade. Printing in all its branches, assisted by the skill of the wood engraver, seems, in the present day, to be one of the media most generally employed in spreading the knowledge of various manufactures. These arts have been brought into use by Mr. Benson, the eminent watchmaker of Ludgate-hill and Old Bond street, London, who has sought by means of "Illustrated Pamphlets," containing beautiful designs for watches, clocks, jewellery, chains, &c., with an elaborate description of every construction of watch now made, to enable persons living in any part of the world to select the watch best adapted for their use, and have it forwarded free by post."—*Sun*.

TENDERS.

For works in changing the stand-house at the Park, Cork, for Cork and Passage Railway:—

	Gross Amount.	Allowed for old materials.	
Hunter . . .	£7031	£608	£5423
Jackson . . .	7400	600	5800
Hargreave . .	6908	1550	5358
Evans . . .	7518	2000	5518
Walker . . .	8000	2250	5750

Hargreave accepted at £5358.

For railway works:—

Barry	£9280
Hargreave (accepted)	7570
	£1750
	5358

Hargreave, £12,928 for both.

TO CORRESPONDENTS.

IRISH ART EXHIBITION.—One of the first exhibitions of the kind took place in the latter end of the last century in Mary-street. There was also an "Irish Shakespeare Gallery" of Painting established a few years later with tolerable success.

ST. PATRICK'S WELL.—There was a famous well of that name within Trinity College grounds, which dried up suddenly in 1726. Dean Swift celebrated this remarkable spring with some well-known lines.

OLD DUBLIN THEATRES.—The site of SS. Michael and John's Chapel was the site of the Smock-alley Theatre. We believe there was one also in George's-lane, and minor ones in some of the lanes off Dame-street and Temple-bar. Fishamble-street Theatre is of old standing. In the year 1732 the principal theatre of Dublin was in Beresford-street.

PARLIAMENTARY INQUIRY.—We believe a parliamentary inquiry is contemplated, and that an overhauling or strict examination into the accounts of one of our chief corporate bodies will take place. The matter, if not brought forward in the Commons by an Irish member, will certainly be moved for by an English one, backed by an influential list of names.

PUBLIC LAMPS.—As far back as 1697 an act was passed for erecting public lamps throughout this city. In 1825 Dublin was first lighted by gas. Judging by the conduct of the Gas Consumers' Company of Dublin, it seems as if Dublin was about to be darkened through the instrumentality of gas, and a copious supply of propelled air through the mains. Our gas-meters are falsified by a current of air instead of an honest current of gas. More hereafter.

A CITIZEN.—Quite true, the IRISH BUILDER is the only Irish journal devoting attention to the subject. Our contemporaries ignore it through their ignorance, and touch it only to make themselves ridiculous, and yet they are critics.

A CARPENTRE.—Smith and Son, of Abbey-street, will procure you any volume you may require of Weale's Rudimentary Series of Architectural publications; or you may write direct to the London Publisher, who will forward them to you.

Some communications are held over till our next for want of room.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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TESTIMONIALS.

From WILLIAM TITE, Esq., M.P. for Bath, and Architect of the Royal Exchange, London.

House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have used both the sorts of Cement manufactured by your firm, and that of Messrs. Francis and Son; I mean the Cement usually called Roman Cement, or the more recent introduction of Portland Cement. I believe these Cements, manufactured by either of your firms, to be equally good. I know no difference, chemically or practically, between them; and I should use, and authorize to be used indifferently, either one or the other. You are at liberty to use this note, if you think it necessary.—I am, Dear Sir, your obedient servant,
Messrs. White & Son. (Signed) WILLIAM TITE.

From R. O. MINNIE, Esq., Surveyor to Board of Ordnance, London.
War Office, Pall Mall, London, S.W.,
3rd March, 1864.

GENTLEMEN.—In reply to your request, I have much pleasure in stating my favourable opinion of the quality of your Portland and other Cements, which have been extensively used in the Public Works connected with the War Department at home and abroad, especially in several of the fortifications now being erected in this country. On all occasions within my knowledge the quality has been equal to that of any other manufacturer, and has given great satisfaction.—I am, gentlemen, your obedient servant,
(Signed) R. O. MINNIE, Surveyor.

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Invert Sewer Blocks.
Ridge Tiles.
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Flue Covers, of all sizes.
Gas Retorts.
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The Irish Builder.

VOL. XIII.—No. 287.

Christmas Literature and Art.

FOR the last few weeks the press of London has been groaning under the weight of its labours, and publishers' and booksellers' shelves are piled high with many-colored volumes of numerous sizes and on a legion of subjects. The Christmas holidays are the happy periods of boyhood, and the publishing world of late years is catering well for the amusement and the instruction of youth. Though a vast quantity of the works issued in London at this season are intended for youths of both sexes, there is no inconsiderable portion of them well adapted for reading by adults. Indeed there are many of the works issued at Christmas-time likely to live as standard volumes on our bookshelves. The magazine and novel publishers have issued, or are issuing, their many sensational and charmingly-bound tomes, and the architectural and art publishers have been lately equally busy in preparing and publishing illustrated works, whose popularity will not die on the close of our Christmas holidays. Messrs. Sprigg (the successors of Atchley and Co., Russell-street); Lockwood and Co., Stationers' Hall-court; Virtue and Co.; Mackenzie; Longmans, Green and Co.; Jobbins; Spon; Warne and Co.; Trübner and Co.; Cassell, Petter, and Galpin, and others, are all issuing works of a practical nature on art and architectural matters, or hinging to them. It is needless almost to enumerate the publishers of light literature and amusement at this season, for they are numerous, and many of them have sent forth on the public market really creditable works of a most varied description. The contributions of the late Mr. Fairholt to the *Art Journal* have been collected by a friend and issued under the following title—"Homes, Haunts, and Works of Rubens, Vandyke, Rembrandt, and Cuyp, the Dutch Genre Painters, Michael Angelo and Raffaele, being a Series of Art Rambles in Belgium, Holland, and Italy." This is a pretty long title for a work: but the book is a most interesting one. Mr. Fairholt's work is well illustrated, and the lovers of Gothic architecture, or with Gothic sympathies, will find much interest in this work, made up of the collected contributions of the late Mr. Fairholt to the *Art Journal*. This work is issued from the house of Virtue and Co. Cassell, Petter, and Galpin have issued some additional volumes this season on practical subjects, besides their usual technical and useful manuals on the arts and sciences, which have already been of such vast use to the operatives of Great Britain. The Under Secretary for the Colonies is the author of a very amusing Christmas work for children;—Mr. Knatchbull Hugesson's "Moonshine" is reckoned a regular bit of sunshine by the juveniles. The press is loud in its praise. Macmillan is the publisher of this book.

Trübner and Co. have published a work, of which the well-known Thomas Wright is the author; it is entitled "The Homes of Other Days," and is dedicated to Lord Lytton. It treats of mediæval times, of the domestic

manners, customs, and sentiments of the Middle Ages in England; of Anglo-Saxon homes, and Norman life and chivalry. This work is an enlargement of a former and similar work by the same author, and will, from its nature, afford artists and even architects an insight to the architecture of the time of which it treats. The book is well printed and illustrated. Routledge and Sons have put out on the market some excellent boys' books of an instructive and amusing kind. "Examples of Municipal, Commercial, and Street Architecture of France and Italy from the Twelfth to the Fifteenth Century," is being issued from the publishing house of Mackenzie, in parts. The work was prepared by Mr. R. Anderson, architect, of Edinburgh. It will contain 102 plates, with letterpress. "A History of the Gothic Revival," by Sir Charles Eastlake, F.R.I.B.A., architect, is being issued by Longmans, Green and Co. This work will no doubt be received with a general approval, from the well-known reputation of the author. "A Treatise on the Resistance of Material, and the Preservation of Timber," by an American professor of civil engineering, De Volson Wood, has also been issued by Trübner and Co. Lockwood and Co., the active publishers of Weale's Rudimentary Series, besides issuing new editions of their valuable manuals, have issued "Practical Geometry for the Architect, Engineer, Surveyor, and Mechanic," and "Every Man His Own Lawyer"—a work bearing on the law of contracts, patents, trade marks, and everything connected with the building and engineering branches of a legal nature. Several works connected with architecture, engineering, surveying, and mechanics are announced, and will probably be issued before the close of the year.

In the realm of romance, poetry, history, pastime, and humour, from the three-volumed novel down to the Christmas number of the popular magazines, the following publishers are prominent:—Smith, Elder, and Co.; Hurst and Blackett; T. C. Newby; Tinsley, Brothers; Simpkin, Marshall, and Co.; Chapman and Hall; John Murray; Richard Bentley and Son; Blackwood and Sons; R. Hardwicke, and others we have previously mentioned.

The Rev. Walter Field has written a work under the title of "The Stones of the Temple." Though a religious work, it touches upon art subjects. A portion of this work was published a considerable time ago in the *Church Builder*. Mr. Field's work gives the derivations of the terms in ecclesiastical architecture of articles attached to or apart from church building. He explains what is meant by the font, the pulpit, the nave, aisles, transept, chancel-screen, altar, organ-chamber, vestry, pillars, roof, tower, &c., and endeavours to convey a lesson full of significance relative to them all.

Here in Dublin we have scarcely anything worth announcing. Hodges and Foster have issued a metrical story entitled "The Geraldine's Bride," by Thomas Gallwey, A.M. "The Justice of Peace for Ireland": a treatise on summary jurisdictions, revised and enlarged, by Leslie Sydney Montgomery, A.M. A pamphlet, by Jonathan Pim, M.P., on "Ireland and the Imperial Parliament," has recently been issued by the same publishers.

The Christmas time in Ireland is not characterised of late years by any increased vitality in the publication of works of fiction

or fact. The immemorial holly-and-ivy cry will be heard in our public streets, and our rooms and halls will be decked as of old with those homely evergreens, symbolical of eternal life; but the hot-pressed volumes, brimful of knowledge or amusement and humour, that formerly leaped from the Irish press, and found their way to our drawing-room tables, we will look for in vain. The publishing trade of this city is indeed at a low ebb; but we do not despair of seeing it once again full of vigour and vitality. Where there are readers in abundance, it needs but enterprise to awaken their interest, and a tact and talent to cater properly for their national wants and tastes. The fact should never be lost sight of by publishers in Ireland—that of giving the purchaser value for his money, whether the subjects of their publications be grave or gay,—a guinea's worth of science or art, or a pennyworth of nonsense. A native literary and art spirit will again ramify this island if our learned bodies and public journals are only true to themselves, and direct and mould the public opinion of the country. The nobility and gentry of Ireland need advice, if they are not above it. If they are, so much the worse for their own interests, and all our interests in the end.

We will not pursue this subject further at present, but end by wishing our patrons and the public in general success and satisfaction in their Christmas purchases and presents in the domain of literature and art.

THE IRISH AND AMERICAN INSTITUTES OF ARCHITECTS.

WE subjoin below a document addressed to the Irish Institute of Architects by their professional brethren in America. No one can doubt the usefulness of a friendly transatlantic or continental intercommunication between the members of professional and learned bodies, and also an exchange of publications. Mr. Henry A. Sims says, on behalf of the American Institute, that its publications are not yet very numerous—a state of literary destitution which also characterises, perhaps to a greater degree, our Irish Institute, and it need hardly be wondered at. The Irish, however, has one advantage over the American body, it meets more often than once a year. Mr. Sims states that the members of the American Institute are too busily engaged in practice, which accounts or excuses for the poverty or sparseness of their publications. We regret to say that the members in general of the architectural profession in Ireland are never over-busy; and, though there are a few able men among their number, the majority of them take but little interest indeed in the history or literature of their guild. There is a want of *esprit de corps* among the members of the Irish architects that we cannot very well explain without indulging in suppositions, which would be ungenerous on our part to moot. Were our architects united our institute would be a power in the land, instead of being powerless from its innate weakness. We know some of its members whose sympathies are right, and whose services are ever volunteered when required. An Architectural Institute should exist, however, more than one in name, and all its members should be ambitious to rival each other in preserving its dignity by adding to their own professional reputation. Drawings of the works executed by each, models of the public buildings erected, maps, plans,

books, and the printed papers read at the institute should be found in their proper place, and well arranged within the walls of the institute. Meetings should take place more often, and practical papers should be read, which would prove of interest not only to architects but to all the operatives of the building trades. It is the duty of Architectural Institutes to afford technical instruction to the young operative generation with whom they are likely to be in contact. There are also various other matters relating to contracts, disputes, and disagreements between architects and builders, and of modes and methods now prevalent in building operations, which do not reflect much honour on our civilization, which might be considered and discussed with a view to reform by our Irish Institute.

We have in our midst, in this capital, an architecture to be proud of, and names who have left the profession of the architect in days past in Ireland, in a better and more dignified position than they found it. 'Tis a pity then, rather it is a shame, that more interest is not manifested by our architects in matters that deeply concern the practice, the dignity, and respectability of their honourable profession.

Not one architectural publication by an Irish architect can we find issuing from the Irish press of any public note. There is a miserable and dismal dearth of Irish publications. We have newspapers enough, but the service they render to architecture in Ireland is *nil*. Our own little publication alone exists as representative of the building interest, which is in truth the architectural interest, and though we can count several members of the institute and without the institute among our subscribers, we are not surprised, at the same time, that we have not many more, when we find how utterly careless the architects of Ireland are in general whether they are represented by an institute or not. It may not be pleasant to write this, and it may prove equally unpleasant for others to read it, but we consider that no amount of trimming or beating about the bush ever yet served any public or national interest. So much by way of preliminary we felt it necessary to write, in giving insertion to the following document:—

426, Walnut-street, Philadelphia, U.S.,
30th June, 1871.

SIR,—The American Institute of Architects, desiring to be in more intimate association with its sister societies of Europe, I am charged with the duty of inviting an interchange of correspondence with the Royal Institute of Architects of Ireland.

This Institute desires that at any rate an annual letter should pass between its secretary for foreign correspondence and the similar office in the Royal Institute of Architects of Ireland; and that an interchange of publications should take place from time to time. This Institute would suggest that the interests of Art would be forwarded if national architectural societies made it a general custom to interchange photographs of meritorious works erected from the designs of their members. Architects, as artists, should ever strive for the advancement of their Art in a cosmopolitan spirit, irrespective of national boundaries; and this Institute cannot but consider that the general cause of Art would be materially promoted by a more perfect knowledge of what is being done in other countries.

The organization of this Institute is somewhat upon the federal principle, resembling in this the government of the country. It is a purely national body, and its members and officers being scattered over the country, it meets but once in each year, namely, in November. During the interim, the affairs are conducted by the officers acting under the directions of the board of trustees, which meets monthly. Branch societies, or chapters as they are termed, have been formed in the large cities, and to these are committed the interests of the art and the

profession in the different localities. The institute is a society of architects or professional guild, being composed of fellows and associates who must have been formerly, or are now, practising architects. The chapters are architectural societies, and are composed of architects who are also members of the institute, together with amateurs and patrons of art generally.

The publications of this institute are not yet very numerous. Architects in this country are, as a general thing, too busily engaged in practice to allow time for writing beyond the regular calls of every-day duty. If, however, you will furnish me with the proper address, copies of what has been published to the present time, and a collection of photographs of some of the more important buildings which have been recently erected in different parts of the country, will be forwarded to your institute. Printed matter, &c., intended for this institute, should be addressed to its business office, No. 98 Broadway, New York.

I shall feel much obliged if you will favour me with a reply to this note in time to enable me to present it at the next annual convention in November.

I beg to remain, Sir,

Your obedient Servant,

HENRY A. SIMS,

Secretary for Foreign Correspondence.

To the Secretary for Foreign Correspondence
of the Royal Institute of Architects of Ireland.

LONDON CHURCH NEWS.

CHURCH restoration and repair is proceeding in several parts of London. Bishopsgate Church, which was built between the year of 1725-9, the old one on the same site being taken down. The original church narrowly escaped destruction during the Great Fire of London. The church has just had some improvements and embellishments made in it which greatly improve its appearance, more especially at the east end. The chancel was originally coated with colour-wash. This has been removed, and decorations as follows have been carried out by Mr. G. J. Pritchard—The ribs of the groined roof have been gilded, and a scroll pattern in oil and colours stencilled alongside each rib, the spandril panels being painted a French grey, and studded over with gold fleurs-de-lis. The panels and stonework round the painted window over the communion-table have been marbled, and the mouldings round the same gilded. The pilasters are also marbled, and the caps gilded. The walls between the pilasters on each side have been stencilled and gilded. The chancel arch is painted, and has a honeysuckle pattern stencilled on the face; whilst on the coffer-panels, in the soffit, the flowers have been gilded solid, with a maroon background, and the mouldings round the panels gilded. A very conspicuous feature of the decorations is the new reredos, executed in mosaics by Signor Salvati, of St. James's-street. On a scroll in the upper part are the words, "Our Father who art in Heaven;" the scroll being intertwined with passion-flowers. Beneath are the first and last letters of the Greek alphabet—Alpha and Omega, having reference to the Book of Revelation. On the right side is a figure of Moses, and on the left St. John, representing respectively the Law and the Gospel. The whole of this mosaic work, which required great patience and skill, has been carried out in a highly satisfactory manner. Some clusters of gas jets have been added to the chancel and other parts of the church. The cost of most of the work (which has been done under the direction of the churchwardens, Messrs. Newman and Latimer) has been provided out of funds left by a benevolent donor, for the sustentation of the fabric. The churchyard belonging, has been for some time laid out as a garden, within which has been placed a fountain and seats. The tombstones are all levelled, and shrubs and flowers and gravelled walks are now above the graves of the dead.

The committee of the Memorial Hall Fund have now agreed on plans prepared by Mr. John Jarring, architect, and the subscribers have approved of the designs. The building will occupy a large frontage in Farrington-street, part of the site of the old

Fleet Prison, and have access also by Fleet-lane. The elevation is a combination of the Baronial with the Gothic, peculiar to the period of the erection; and will have a very striking and imposing appearance. The cost of the freehold was £28,000, and the hall and offices will not be built for less. But the building will be a fine ornament to that part of the City.

The church of St. Clement, Eastcheap, is being re-arranged, restored, and decorated by Mr. Butterfield. A proposal has been made to erect a window to the memory of the great prelate.

The issuing of a commission by the Bishop of London to inquire into the expediency of the union of the rectory of Allhallows, Bread-street, with St. John the Evangelist, with St. Mary-le-Bow, was reported, and it was stated that the repairs of the bells were completed.

At a vestry of the united parishes of St. Mary Magdalen and St. Laurence, Jewry, three exhibitors under Mrs. Elizabeth Smith's charity were elected. The question of prizes was spoken of. The chairman thought the matter had better be deferred for more mature consideration. He drew attention to some designs for stained-glass windows for the united parishes, which had been sent by Messrs. Clayton and Bell, as also to a sketch by Messrs. Cox and Son for the "back memorial window," which is to be erected by subscriptions from the choir and friends. A vote of thanks to the chairman closed the proceedings. The exhibitions, which are tenable for six years, are now available for the City of London School, University College or King's College, were founded by the will of Mrs. Elizabeth Smith, who in 1693 left several houses in Broad-street to the parishes.

CORRESPONDENCE.

"THE INDURATION OF MORTAR."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I have read with some interest a paper in your last issue entitled "The Induration of Mortar," and it is to me a matter of surprise, that builders should be either inattentive to, or perhaps so unacquainted with, one of the most ordinary processes of nature, as to recommend mortar being prepared from lime, rendered deliquescent unless applied before it has had time to reacquire carbonic acid gas in quantities sufficient to deteriorate it, which according to present practice it assuredly does from being exposed for lengthened periods, and under circumstances which largely neutralise its cementing power. As an illustration, I will give lime-water. Now it is well known in every chemical laboratory, that this preparation—which is simply hydrate of lime in solution with water—must be kept in air-tight vessels; because if exposed to contact with the atmosphere it rapidly loses its properties, either for medicinal purposes or for use in arts or manufactures, as when thus treated, it produces pellicle upon pellicle of carbonate, until what remains of the lime becomes precipitated in a residuum, which is speedily deprived of its acrid taste, shewing it to be utterly valueless for its intended purposes. Now, if this applies to lime-water, it is apparent it must equally apply to lime prepared from what builders call putty, which, after all, is only a solution of the hydrate upon a larger scale. Therefore, if occasionally it becomes a matter of necessity to prepare mortar in this manner, it should only be in small quantities at a time, and then immediately incorporated with the sand, by which means exposure in large surfaces is avoided, and the too rapid absorption of carbonic acid gas prevented to a considerable extent. As a rule, I do not approve of putty mortar; but it often occurs time will not permit plastering material to be made as it ought to be by slaking. In such cases I have had it prepared as I describe, and found no injurious effects to follow.—I am, Sir, yours,
AN ARCHITECT.

A CHAPTER UPON LIME.—WHENCE DERIVED.*

LIME is a simple white earth soluble in water which enters largely into the composition of several substances—animal, vegetable, and mineral, and is contained in the greatest abundance in all calcareous rocks—but lime, whence derived, or the important part it bears in the economy of nature, is possibly little understood by those whom every-day experience leads them in contact with it. In its primary state we find it in solution with springs, or water which has percolated through calcareous strata, and as such is valueless, except for medicinal purposes, or so far as it enters into animal or vegetable life, but water everywhere has a strong affinity for combining with carbonic acid gas, and this gas which issues abundantly from the earth (but more particularly in volcanic countries, of which more hereafter) becomes the medium which solidifies lime by petrification, and gives it to us in the form of carbonate or lime stone. In order more easily to understand the process by which this is effected we have only to observe the formation of stalactite and stalagmite—both these substances are formed by lime held in solution by water which issues drop by drop into some caverned recess beneath the earth (possibly excavated by the action of a subterranean river at some remote period—or it may be by volcanic agency) each drop gradually solidifying, as commencing like a small icicle, until the stalactite reaches the stalagmite which has been more slowly in formation from the overplus of the drop to underneath—the stalagmite producing the larger amount of petrification until at length they become united and produce a solid pillar of stone, these being multiplied in endless variety of form according to the extent of the caverned recess and to the amount of lime held in solution above, produce in course of ages the vast stalactite caves of the American and European continents, in Derbyshire in England, and in Ireland, as for example, near Mitchelstown in the Co. Cork. This is what is technically called carbonate of lime in one of its purest forms, which ought to produce a pure white; however, it receives much colouring matter according as the water which produces it passes through different mineral strata, and thereby it receives every variety of tint. The same process is continuously going on in volcanic countries, but by a different medium, i.e., through the agency of running water, and in a far more rapid manner caused by the greater quantity of carbonic acid gas existing in some regions, as the Travertine springs of Italy, where solid masses of stone averaging one foot in thickness are formed, according to the authority of Lyell, in four months, and it is of this stone a great portion of the best buildings of ancient and modern Rome are erected (*vide* Lyell's "Principles of Geology," vol. i, page 234). Dr. Grosse on the baths of San Filippo (Ed. Phil. Jour. vol. ii, page 292,) thus writes—"The water which supplies the baths falls into a kind of pond where it has been known to deposit a solid mass 30 feet thick in about 20 years."

Carbonate of lime does not generally shew as much appearance of stratification as is usual with rocks of sedimentary deposit, but travertine and stalagmite are exceptions to this rule, as both are formed in layers, and many examples of them occur in the thinnest laminæ, sections of stalagmite often shewing as petrified timber in circular rings, so also does travertine, from being formed round the pendant branches of trees or perhaps reeds growing in the water into which it is precipitated. Mountain limestone, from which lime for building or agricultural purposes is

obtained, does not exhibit stratification to any extent, but occurs in beds of more or less thickness, occasionally showing no stratification whatever, and although it forms some of the highest mountain masses occurring in beds of several hundred feet in thickness, is acknowledged to have been formed under water, the theory for which we have sufficient evidence of in the numerous shells and fossil remains which it contains. Rivers deposit calcareous strata at the bottom of the sea, where numerous foreign substances become imbedded in it, but mineral springs which give out an equal quantity of matter at all seasons, and which are known frequently to run up at the bottom of the sea, particularly in volcanic regions,* are the chief sources whence carbonate of lime has been derived. Volcanic agency at the present day is raising up the coral reefs of the Pacific, and in remote ages has lifted the immense masses of carbonate into mountain ridges, and by the subsidence of the sea has made firm land of the rock-built plains whence our supplies are derived.

Ireland is possibly as well circumstanced with regard to limestone, in comparison to its size, as any other country in the world. The marbles of Connemara and Galway have European reputation. Cork, Kilkenny, and Carlow marbles were formerly much in use, while the entire seaboard facing the Atlantic from the extreme west round to Bantry Bay are nearly continuous masses of this stone, and occasionally protruding on the eastern and northern coasts. All the rocks which skirt the shores and fringe the islands in the Killarney lakes are composed of it, while on the north-east it occurs extensively in the form of chalk converted (by being traversed with basalt) into granular marble in the form of dark brown crystalline stone,† and the entire of central Ireland contains it of a greyish white in the greatest abundance. With regard to Dublin, so late as the last century, extensive quarries of it were worked in Lower Baggot-street, near Stephen's Green, also at Raheny, Rathfarnham, and Lucan, and we still have it in immense quantity at Howth and Skerries, particularly the latter, also along the entire bed of the Dodder, and largely outside the western suburbs of the city.

THE ARCHBISHOP OF CASHEL AND THE IRISH BUILDER.

"THURLES CATHEDRAL AND ITALIAN ART."

A PARAGRAPH appeared in the last issue of the IRISH BUILDER, under the heading of "Thurles Cathedral and Italian Art," in which it was stated that a tabernacle had arrived from Rome and was about to be placed in the Cathedral. While mentioning the fact, which we did on the authority of a paragraph in the *Limerick Reporter*, we condemned, at the same time, the importation of foreign works of art into Ireland, saying, we thought his lordship might have given the order to some of our resident artists. We also added those words, "Ireland or Irish art cannot afford to suffer in this ignoble manner."

We have received a letter from his grace, in which we are accused of making a gross misrepresentation of the facts, and he, moreover, considers our remarks of a nature calculated to prevent people from contributing to the funds of the Cathedral building. We are told also in his lordship's letter, that our remarks are actionable, and we are warned, if we do not give up the name of the writer of the said paragraph, proceedings will be at once taken against us.

Our answer to these charges will be simple and straightforward. We had no reason for doubting the statement in the local journal, that the tabernacle in question, brought from Rome, was a new work of Italian art instead

of an antique purchase, or *present* perhaps, imported by his grace from Rome; and on the reasonable supposition that it was a new work our observations were penned. We have always consistently advocated Irish art interests, and condemned the practice so much in vogue, both among ecclesiastics and laymen, of encouraging foreign art and artists, to the injury of native and resident ones.

In this spirit our remarks were made, and will ever be made. We would regret, at the same time, to think that anything we have written was calculated to prevent people from contributing to the funds of the Cathedral. We openly disclaim any such intention, or of any covert design to do aught connected with the Cathedral an injury. From his lordship's letter we subjoin the following portion, in explanation of what he states to be the true facts of the case:—

"At this very moment there are employed here, and for some months have been, a number of Irish artists in altering and improving and finishing the tabernacle to which reference has been made in the article in question, and to the same artists is entrusted the making and erecting of the double altar on which this tabernacle is to stand. Over these artists is placed a young Dublin man of fine taste and skill—Mr. Chapman. He has associated with him other Dublin artists who are a credit to their country, having now nearly completed the great altar in a style equal to any Italian work. They have the exclusive execution of the marble works in the Cathedral. The portion of the tabernacle brought from Rome was brought for sake of the antique marble composing it. The remodelling it and fitting into our altar is, so far, and is to be to the end, the work of these Irish artists."

All we can say to this is, that we are glad to hear his grace give this explanation, but sorry he should think it necessary to threaten us with law proceedings for speaking to the best of our information in the interest of our constituency and countrymen. For upwards of twelve years the IRISH BUILDER has independently and faithfully advocated the interests it was established to represent. It will not swerve from its consistent course; and, though always holding itself amenable to the public will if mistaken, it will nevertheless dare to act in consonance with the spirit that governs the freedom of the press and the liberty of the subject.

Now what is the meaning conveyed, we would ask, in the following paragraph in the *Limerick Reporter*, published in his lordship's own diocese? How does it read in the light of his lordship's explanation?

"The grand tabernacle for the noble Cathedral of Thurles, has arrived from Rome to his Grace the Most Rev. Dr. Leahy, Lord Archbishop of Cashel and Emly, and has been conveyed into the cathedral to be placed in its proper position."

The Archbishop of Cashel is, we have, since our last issue, been informed by those who know him, a great advocate of Irish art and manufacture. It gives us great pleasure to hear and record the fact which must redound to his credit; but his very strange letter to us forces on us a reply in our own vindication.

We fail to see where an action would lie against us, or how it could be proved that we have grossly misrepresented the facts of the case. We were uninformed, until we received his lordship's letter, of what works were proceeding at Thurles Cathedral, or what artists were employed. We therefore resent his lordship's accusation of being guilty of a "foul depreciation" of Irish artists, and we are pained to think that the dignity of a Christian Church would make such uncharitable remarks or exhibit such a revengeful spirit. If his lordship conscientiously believes we have wantonly and maliciously taken up our pen to injure his character, let him by all means proceed against us; but let us clearly understand that we are prosecuted by an Archbishop and not in the name of the Church. Church bodies, as well as corporate bodies, are open to public criticism and comment. We plead "not guilty," and we have faith in the justice of our fellow-citizens, if the issue be tried, that our plea would not be falsified.

* Written for the Proprietor of the IRISH BUILDER by William Hughes, Esq.

† A curious peculiarity occurs in the formation of stalagmite, which fully bears out our remarks in a former paper, "The Induration of Mortar." If stalagmite is formed upon a porous or sandy substratum it does not solidify to the same extent it would under other circumstances, because the water it contains is abstracted as rapidly as it is produced, and although it retains its bulk will easily pulverize as mortar does when used with highly absorbent material.

NOTES ON EARLY PRINTING AND PUBLISHING IN IRELAND.

RECENTLY in these pages we reviewed the state of Native Literature and the Publishing Trade in Ireland, and we had occasion, in the pursuit of our subject, to pass some strictures which challenged controversy. Then, as now, our object was sincere desire to effect a public and national good, while at the same time affording interesting historical particulars relating to branches of industry in Ireland once rife, though now in a mournful state of stagnation. We now purpose to treat our readers to a subject pendant to the former, giving some account of the early printing trade of Ireland, its slow growth and its chequered career until the dawn of the nineteenth century. The first attempts at printing in Ireland are enveloped in much doubt, and the few disciples of Faust and Gutenberg who found a footing in this *Insula Sanctorum* had no unusual obstacles to contend against in the exercise of their mystic art, and the preservation of their lives and household effects. It was not the rage of the rabble or the superstition of the mob that beset them, but high-handed and irresponsible authority often swooped down upon them, seized their plant, and, if failing to capture the unlucky printers, outlawed them by warrant or ukase for their "seditious and treasonable practices." The early printers, publishers, and booksellers of Ireland, in the eye of the law, were always a contumacious and stubborn race of dare-devils who had not the fear of God nor respect for the Executive before their eyes. They were narrowly watched, and though licensed betimes, were scarcely trusted, except when State printers, to pursue their calling without a constant espionage. The truth of these statements will be seen as we proceed. Ireland was one of the latest of the European nations into which the art of printing was introduced, but it is not to be inferred from this that learning was at a very low ebb in consequence. The monastic establishments of the country were nearly all of them seats of learning, and the pens of the monks and their assistants and contemporaries, the native genealogists and historiographers were busy. Piles of Irish MSS. in the native dialect and the Latin tongue were to be found in every ecclesiastical institution; and art as well as calligraphy was encouraged and assisted to live in the composition and illuminating of manuscript volumes on various subjects. Whatever may have been the shortcomings of the monks and friars of old, the literature of their religion and their country's history had for them an undying charm. They worked diligently and laboriously and toiled incessantly at this labour of love in writing, collating, transcribing, and translating, long centuries ere a "first proof" passed from under a printing press on the soil of Ireland.

The first efforts at printing in Ireland were confined most exclusively to tracts and books connected with the services of religion and the Church. Before the year 1600 very little of any sort of printing was executed in this country. One of the earliest was the following—"The Book of Common Prayer and Administration of the Sacraments and other Rites and Ceremonies of the Church of England. *Dubliniæ: in Officina Humphredt Poweli, cum privilegio ad imprimendum solum. Anno domini 1551.*" This book was in black letter; the copy in Emanuel College Library is large quarto.

There are many early tracts and prints bearing date as printed at Waterford during the sixteenth century, or during Mary's reign, and subsequent, but it is doubtful in most of these cases that they were printed in Waterford. Our history supplies us with no data as to the existence of any press at Waterford so early. These books were most likely printed at the continental presses, or possibly privately printed in England. For upwards of a century and a-half subsequent to this, Irish churchmen and others were in the habit of printing their works abroad—in France, in Flanders, and

Italy. Many Irish works, and some in Irish character, have been printed in Rome down to the eighteenth century. The title of one of these works printed at Waterford begins thus—"The Acquistal or Purgation of the Most Catholyke Christen Priuce Edward the VI., Kyng of Englande, Fraunce, and Irelande, &c." It is dedicated "To the nobilitie and to the reste of the charitable Christen laytie of Englande. John Olde wisheth grace and mercy from God the Father and from Jesus Christ the common and only Saviour of the world, with the gifte of perfitte faith and earnest repentance." This work is printed in black letter, with quotations in italics, and bears date "Emprinted at Vwaterford the 7 daye of Novembre, 1555." Another book in similar type and letter, also supposed to be printed at Waterford, begins its title thus—"An Epistle Written by John Scory, the late Bishop of Chichester, vnto all the Faythful that be in Pryson in Englande, or any other Trible, for the Defence of Godde's Truthe," &c. At the end, "Apoca 22 veni Domine Jesu cito anno 1555." This work has no printer's name nor indication of the place where printed.

In 1571 we find that Nicholas Walsh, Chancellor of St. Patrick's, brought printing types in the Irish character to Dublin. A catechism, translated into Irish by John Kerney, Treasurer to St. Patrick's, is supposed by many to be the first book printed in this character in Ireland. This was while his companion and friend, the above Nicholas Walsh, was at St. Patrick's. John Kerney assisted in translating the Bible into Irish, which was extant in Sir James Ware's time. It is alluded to in Harris's translation of Ware on "Irish Writers."

In 1566 or 7 an Irish liturgy was printed for the use of the Highlanders of Scotland. In the latter year a form of prayer printed in Gaelic was issued by John Knox, but this was printed at Edinburgh. A translation of Calvin's Catechism appeared in 1631, and in 1631 the Presbyterian Synod of Argyle issued translations into the Gaelic of the metrical psalms. In 1690 the first bible was published for the use of the Highlands. These works were all in the Irish orthography and the Irish dialect, but none of these as far as we can find were printed in this country. We mention them here because belonging to our language. Sir Henry Sydney ordered all the statutes enacted in Ireland from the first institution down to his own time to be collected and printed. Sir Richard Bolton, Lord Chief Baron of Ireland, in a new edition printed in Dublin in folio 1621, supplied several defects in the former edition. John Vowel *alias* Hooker, a Burgess of the Irish Parliament in 1568-9 collected and published in 1572 "The Order and Vsaage of Keeping of the Parliaments of England." It is inscribed "To the Right Honourable his very good Lord Sir William, Fitz VWilliam, Knight, L. deputye of Ireland John Vovvel *alias* Hooker vvith all humbleness and due reuerence vvisheth a happy successe and a prosperous governmēt to th' increase of God's honor in true religion, the Queenes Maiesties Service in due obedience and the administration of the publike vveth in Justice Equitie and Iudgment."

In 1571 we find Vowel in England busy compiling and collecting all the ancient forms and usages of the law and keeping his faith with his patron Sydney. Vowel was elected as member to Exeter in the Parliament held at Westminster, 13th Elizabeth, 1571. Vowel's latest legal work is inserted in Hollinshed's Chronicle, 1586. Where the work of Vowel was printed separately we are unable to learn, but it bears some internal evidence from certain expressions used of having been printed in Ireland. It is quarto in size. Irish almanacks appear to have been pretty early printed in this country. One William Farmer wrote an almanack, printed in Dublin in 1587, and had successors for years, "Weather Prophets," but not until after the Battle of the Boyne did these impostors grow much in number. There we find the noted Dr. Whalley, followed by

Compotoy, a French refugee or Flemish soldier, and Laboissiere. These "starry interpreters" were succeeded in turn by less able and more illiterate impostors. Next comes Isaac Butler and John Smyth, each contending they were the legitimate successors of the famous Whalley. Butler claimed to be a student in astronomy and botany. The printing and publishing of almanacks in Ireland proved a pretty profitable trade from their first starting in Ireland down to the present century. John Smyth, of Elbowlane, Meath-street, "gives his advice from the stars in 1759," and a watch mender in Cork edited the "Lady's Almanack." The first publication of "Knapp's Lady's Almanack" was in 1737. After his death it was started in Dublin under the title of "Knapp's Redivivus." Nicholas Grant, of Newry, a shop-keeper and schoolmaster, compiled an almanack which was printed by Jackson, of Meath-street, in this city, and after Jackson's death the copyright of two or three popular almanacks passed into the hands of P. Wogan, bookseller, of Ormond-quay. They continued to publish them for several years, and several law suits were instituted against other "Starry interpreters" for infringing copyright. Jones, a bookseller of Thomas-street, published a piratical edition of these almanacks. We allude to these almanack makers at length because they afforded a good deal of employment and work for the printing trade in Ireland, and from the fact they formed a good portion of the work of the trade at one time in this city.

An "Irish Common Prayer," printed in the Irish character, dedicated to Sir Arthur Chichester, Knight, Lord Deputy General, by William, Archbishop of Tuam, appeared in October, 1609. It was "printed by John Francon." It was a folio. Francon's name does not appear to any other publication that we have found, nor do we believe that his name is to be met with in connection with the Stationers' Company of London. Where he commenced the exercise of his art or learned it we do not know.

The first Dublin newspaper was printed or published by Robert Thornton, bookseller, at the sign of the Leather Bottle in Skiener's-row, A.D. 1682. It comprised a single leaf of small folio size printed on both sides, each number being dated, and commencing in the form of a letter with the word "Sir." In 1700 the first regular newspaper entitled "Pue's Occurrences" made its appearance. Castle-street was the principal haunt of booksellers previous to and during the eighteenth century, and one Eliphod Dobson (a not very euphonious name) was one, if not the most wealthy bookseller in Castle-street. His house was called the "Stationers' Arms," and it flourished during the reign of James II. During the Commonwealth there was only one printer who proclaimed his craft and followed his calling with the permission of the authorities. The law was arbitrary, and printers were not to be trusted, for fear they would set the Lifey on fire. Works about to be printed during the Commonwealth had to be submitted to a Clerk of the Council to receive his *imprimatur* before being published. Under the reign of William the press in Dublin and the printing trade were equally and arbitrarily trampled upon. Malone was dismissed from the office of State printer and was tried with John Dowling at the Queen's Bench for publishing "A Manuall of Devout Prayers," intended for the use of Catholics. This was in the year of 1707. In 1698 William Moleynaux, a member of the University of Dubes, published a work entitled "The Case of Ireland Stated." This book was condemned to be publicly burned by the common hangman. From this period till nearly the close of the eighteenth century, printers and publishers and booksellers in Ireland were obliged to be careful of what they printed against the powers that ruled.

Swift published with a vigour and a vengeance early in the eighteenth century, and his printer and publisher, whenever they could be found, paid penalty for their "high

crimes and misdemeanours." His "Draper's Letters" startled the Executive, and rewards were offered for the discovery of the printer. It is supposed that the satirical dean had a private printing press of his own, and that many of his "treasonable" tracts were worked off *sub rosa*. An incident that occurred several years ago during some alterations or demolition of a dwelling once occupied by Swift, would seem to prove the fact of the author of Draper's Letters having a private printing press, some plant and mechanism of a printing press having been unearthed. From the middle of the eighteenth century until its close, the printing, publishing, and book-selling trades in Ireland made rapid strides, though a great quantity of the works were reprints of English and foreign books. The newspapers of Ireland were few before the present century, and the periodical literature of Ireland was scant and feverish. Of the more remarkable journals and periodicals published during the eighteenth century we intend to devote a separate paper, with some note of their printers and publishers; of our old booksellers, we intend also to afford some waifs and strays, with a glimpse of the authors who wrote at home or published abroad, when the practice of printing was one of the blackest arts that was cultivated in Ireland.

Although comparatively few works were printed in Ireland from the first establishment of the art on the introduction of the printing press down to the year 1700; yet we can assert with the most ample proofs that very good printing in various styles has been carried on in Ireland for the last 200 years. Works have been issued from the Irish press in the eighteenth century that could bear comparison with many issued in England or abroad at the same period—works not only confined to mere letterpress but several ably illustrated and in a state of artistic execution connected with every branch of the art, from paper making to binding and lettering.

We must pause here for to-day and take breath, promising to resume our subject on the printing, publishing, and literary crafts in this country ere the dawn of the nineteenth century.

DUBLINIENSIS.

PAINTING, SCULPTURE, AND ARCHITECTURE.

MR. James Dafforne, who has in hand a work on Daniel Maclise, has written another work, just now issued from the publishing house of Virtue and Co., entitled—"Pictures by C. R. Leslie, R.A.," with descriptions and a biographical sketch of the painters. It is beautifully illustrated with steel engravings.

A work on sculpture and sculptors is in preparation, to be entitled—"The British School of Sculpture." It will embrace sketches of the Art from the earliest times, including all the deceased members of the British school. We hope the Irish school is included, and that Hickey, Smith, Hogan and others will come in for due notice. The work will be written by William B. Scott, author of the life of Albert Durer. It will be illustrated with several wood engravings, and upwards of fifty woodcuts in addition.

A work on "Art Studies from Nature applied to Design," is also preparing for the Press. This work is intended for the use of Architects, Designers and Manufacturers. It will be in three divisions: I. "The adaptability of our Native Plants to the Purposes of Ornamental Art," by Edward Hulme, F.L.S. II. "Sea Weeds as Objects of Design," by S. J. Mackie, Esq., F.G.S., F.S.A. III. "The Crystals of Snow as applied to the Purposes of Design," by James Glaisher, Esq., F.R.S. This work will be extensively illustrated. Virtue and Co., are also the publishers of the two latter-mentioned volumes. From what appears here and elsewhere in our columns, it will be seen that the interests of painting, sculpture

and architecture, are well attended across the Channel at present.

When will we have the history of fine arts in Ireland, and the lives of our painters, Sculptors and Architects undertaken, or, when will our nobility and gentry, and professional men, show a little more interest in their own professions, and give encouragement to those who have laboured earnestly to serve their interests, and vindicate the reputation of our native artists and our arts?

THE SOCIETY OF ARTS.

At the celebration of the one hundred and eighteenth session of the Society of Arts, the chair was occupied by Mr. Seymour Teulon, in the absence of Lord Henry Lennox, M.P., who was prevented from attending by severe indisposition. Had his lordship attended he would most likely have delivered his valedictory address. Mr. P. LeNeve Foster read the address that his lordship would have delivered. It is said to have been dictated by his lordship while sitting in bed, and taken down in shorthand. The address began by giving, as usual, an enumeration with biographical remarks of the losses the Society had sustained during the past year by the death of members. Amongst those to be much regretted were: Mr. James Easton, the founder, famous for his railway, water, and drainage works; Mr. J. H. Robinson, R.A., a line engraver, who helped to render the English school of engraving in the last century pre-eminent; Mr. Charles Babbage, who, though not a member of the society, on various occasions contributed to the society's journal; Sir John Fox Burgoyne, who last year, though in his 80th year, wrote to the Secretary a vigorous letter, approving of the school-drill review which the society was then proposing to organise; lastly, Sir Roderick Murchison, so recently departed, laden with the highest of scientific honours. Going on to deal with the various works undertaken by the society, a great variety of subjects identified with the objects of the institution were reviewed in his lordship's address. During the last session Professor Barff delivered a series of the Cantor lectures, the subject being "Artists' Colours and Pigments;" and so great was their success that the Royal Academy had been induced to found a Professorship of Chemistry for the investigation of the chemistry of colours, the first holder of that office being Professor Barff. Amongst other things the council hoped they might have leisure, during the ensuing session, once more to turn their intention to the improvement of channel steamers between England and France. His lordship desired to point out, in reference to steam navigation, that the improvement of marine engine science, and still more of marine engine practice, in reducing the consumption of fuel in steamers, was creating a very large and novel demand for steam vessels of almost all descriptions. This was evident in the carriage of both passengers and produce, and steamers were replacing sailing ships everywhere, and were also displacing in no small degree the transport of goods by land—a result which would materially reduce the price of commodities conveyed to great distances. Measures were on foot for taking the coal of South Wales to Paris for sale at a cheaper rate than that at which the inferior coal of Belgium is now sold there; for bringing the grain and other produce of inland America direct to Europe by steamships from the river cities on a larger scale than heretofore; and for taking the tea of China into Eastern Russia and Siberia by way of the sea of Japan and of the Amoor, instead of by an overland route which occupied a far longer time.

After alluding to the interest which the society had taken in lifeboat construction and in lighting at sea, the subject of education afforded his lordship the opportunity of stating that the time had arrived when the council would be justified in taking active measures for promoting the establishment of a national training school for music. By

the united assistance of the State, of Her Majesty's Commissioners for the Exhibition of 1851, the municipal and educational authorities of the country, and the benevolence of the public, it was hoped that ere long this idea would be an established fact. The Society of Arts was justified in thoroughly congratulating itself, his lordship thought, upon the great stride which had been made towards affording technical instruction to the artisan classes, as evidenced by the character of the work displayed at the last international exhibition. The establishment of postal telegraphs had proved the correctness of the views of this society in its advocacy of the system, and during the ensuing session one of the objects the council would keep in view would be the exercising of a continuous and gentle pressure on the Postmaster-General, to endeavour to induce him to follow the good example of Belgium and Switzerland, and lower the postal tariff from 1s. 6d. While referring to a subject which so nearly affected convenience of the working classes, his lordship desired to direct attention to an able report, drawn up by Mr. Chadwick, upon the best means of bringing about an improvement in the construction, material, warming, ventilation, and laying out of houses and cottages for the artisan classes. That momentous matter would occupy the earnest attention of the society. Then the Food Committee would continue its labours, with the view of extending the benefits already conferred upon the artisan population by the introduction of preserved meats from distant lands. As to the examinations which the society established in 1856, though they had been eminently successful, it was now considered that they were no longer an educational necessity of the age, and they would be discontinued in their present form, such work being properly left in the future to the Government of the nation. In conclusion, his lordship expressed the hope that the example set by several worthy men of presenting sums of money to the society, to be held in trust for the promotion of the general objects, would be followed by many of the wealthy, so as to create a permanent endowment fund, the interest of which might enable the society to go on seeking out new fields of industry for the people, thereby tending to improve their condition, and so prevent poverty and its attendant evils.

After a cordial and sympathetic vote of thanks was accorded to Lord Lennox for the address, on the motion of Mr. Edwin Chadwick, the business of the evening concluded with the presentation of the following prizes:

The Society's Gold Medal to Charles F. Chubb, of Ipswich, Queensland, for the importation into this country of silk cocoons from Australia.

The Society's Silver Medal to Ferdinand Kohn (deceased since the award), for a paper on "The Machinery used in Sugar-making;" Thomas Jacob, for amboyna inlaid lute table; J. W. Gould, for modelling a figure of a child in plaster; J. Daymond, jun., designing and modelling friezes; Messrs. Cox and Son, for sets of church plate; John Keith, for ditto; B. J. Talbert, for designs of church plate; T. Winstanley, pair of wrought-iron gates; F. W. Porter, designing the same.

The Prince Consort's prize of £25, and the special certificate of merit for extraordinary proficiency and success in the local examinations, were awarded to Thomas Dawe, aged twenty, of the Mechanics' Institution, Devonport.

The young members of our Irish Mechanics' Institutions, and particularly those of the Art schools of Dublin and Belfast, have examples before them to emulate, when they read of the prizes and medals awarded for proficiency in their several special studies. Irish stone-carvers, plasterers, cabinet-makers, smiths, goldsmiths, and machinists—in fact all trades have facilities before them at the present day, if they only avail themselves of them for their own personal advancement and their country's benefit. Will they be wise in time?

SANITARY PROGRESS IN THE CITY AND PROVINCES.

DUBLIN is clearly not in a sanitary condition. In the Registrar-General's weekly return of births and deaths there appears 168 registered deaths, and the births reported are but 172—just four more. The average number in the corresponding week of the previous seven years—the number of registered deaths—was 158. Our state of mortality in the week ending November the 18th is a rather gloomy one. The population of the city, inclusive of the townships, is 300,565 (in round numbers). Fever, typhoid or enteric, and scarlet fever is prevalent. The number of deaths registered in the week ending November 18th shows a mortality of 28 in every 1,000. Taking the North City District, including the hospitals of the North Dublin Union Workhouse, we have a mortality of 31 in every 1,000. The South Dublin District also represent an annual mortality of 31 in every 1,000. In London, huge though she is in extent, the ratio is only 26 in every 1,000. There are numerous deaths, we are of opinion, that are never registered in this city, and probably births also. The difference between the registered number of births and deaths is so small as to create a terrible suspicion that a state of matters exists at once abnormal and unnatural. In fact, it is a case that requires a searching inquiry or commission to report upon it.

A landlord a few days since was brought up before one of our courts for the disgraceful condition of one of his houses set in tenements. He was an old and hardened offender against the laws of sanitary reform. Seven cases of small-pox were recently removed from his human piggery, and several deaths had occurred. Repeatedly warned, he still kept "never minding," continued paying the fines inflicted by the magistrate, and gloried in the reign of muck which he, no doubt, considered lucky. In cases like this the magistrate should peremptorily refuse the option of paying a fine, and relegate these blood-poisoners of the poor to bridewell prison, compelling them to pick oakum and break stones like other culprits who have criminally offended the public morals and public health.

The Town Commissioners of Naas have elected their weigh-master to act as an inspector of nuisances. We think the offices should be separate. The two avocations are inharmonious, and they preclude a spirit of independence on the part of the official who will have to perform both duties.

In several of the union workhouses of Leinster there seems to be an utter want of arrangement or order. The Poor Law Commissioners are kept pretty busy with correspondence relative to the irregularities existing in many of our Irish workhouses. Masters and matrons, relieving officers and clerks, medical officers and guardians are having a regular set-to on the head of their responsibilities, their duties and the neglect of them. We hope something good will result from this perfect and perplexing Babel of confusion and talk.

ON THE PREVALENCE AND DISTRIBUTION OF FEVER IN DUBLIN.*

In bringing forward the following remarks at the present time, I am performing an unpleasant duty; unpleasant, because I have to show not only that fever is more prevalent in Dublin than it had been during the past few years, and that it is on the increase, but that the form of fever considered by sanitarians as the most preventible is the one most increased; that fever is widely spread through Dublin; and that the conditions which favour the spread and production of fever, and with

it all forms of zymotic disease, are so rife in our city, that we cannot expect any permanent diminution in fever without some great change in our present sanitary system. I do not purpose to enter upon the general question of the sanitary condition of Dublin, as I understand that within a short period that question will be fully brought forward by a gentleman who is fully investigating the subject. This paper will naturally divide itself into two parts—the prevalence of fever, and its distribution.

I shall first consider the question of the prevalence of fever in Dublin. I have prepared a table showing the fluctuations in fever and zymotic disease in Dublin during the past fifteen years. This table includes some other diseases not of the febrile zymotic class; but practically these make but little difference in the fluctuations. Fever is practically one zymotic disease; and all the illustrations to the cases in the diagram may be considered as due to the increase or decrease of that disease. The numbers are derived from the returns to the Dublin Hospitals Board, as published in their report, and also from those of the secretary and registrar of the Hardwicke and Cork-street Fever Hospitals.

Fever prevailed during the year 1866 to a greater extent than at any time during the period under consideration. From 1866 it steadily decreased until the year 1869; since then it has been steadily rising, until we find that the number of admissions to the fever hospitals in 1871 are almost identical with those in 1861. The accommodation in Cork-street Hospital is practically unlimited; in fact, on but one day during past fifteen years was it found necessary to give notice that no more patients could be received.

The registration of deaths has been introduced into this city since 1864. The weekly slips published are not accurate, inasmuch as the number of burials in the Dublin cemeteries exceed the number of deaths registered in the Dublin district by nearly 1000 per annum. In proof of this fact I refer you to the tables and diagrams which I have prepared.

I have thus shown that fever has not been permanently checked in Dublin, but is in nearly the same state as it was ten years ago, and is above the average of the last five years. I believe that the low fever-rate of the years 1868 and 1869 was but one of those temporary fluctuations which occur from time to time, and that it cannot be ascribed to action taken under the Sanitary Act of 1866; or if it can be ascribed to such action, then the measures taken must have been so relaxed that fever is resuming its old sway in Dublin.

I have next to consider the relative prevalence of late of the different forms of fever. In considering this question, we may leave relapsing fever out of the question, as but two cases of that disease have been admitted into Cork-street Hospital during the past two years. While typhus and simple fever have been on the decrease, enteric fever has been on the increase. Thus, in the year ending September 30th, 1870, typhus was above the average during eight months, while the following year it was above the average for but four months. On the contrary, enteric fever was but one month above the average in the first year, while in the second it was above the average for nine months. It is worth remark here, that the increase of the simple forms of fever generally accompanies, or immediately precedes or follows, increase in some one of the other forms. When it is remembered that enteric fever is generally considered by sanitarians to be dependent on bad drainage or impure water-supply, it is difficult to account for the sudden increase of that form of fever in Dublin, as we show that the water-supply is nearly perfect, and that the drainage has been steadily, though slowly, improving. It has been suggested to me that the stirring up of dirt, consequent on the construction of new drains, might be the cause; but I cannot see that this can account for it, as I find fever connected with local unsanitary conditions, and I have not, in any of the

fever-nests which I have visited, discovered that there has been any such stirring up, for the very good reason that there has been no attempt at forming effectual drains for these houses. I do not believe that the Vartry water is the cause; as, if it were, the increase of enteric fever should have occurred before the present year. I admit, however, that I have heard of a suspicion of sewage-pollution of the Roundwood reservoir. There is one way in which the Vartry water may have indirectly caused pollution of drinking-water; namely, people not liking the Vartry have taken to an old pump; and I have given a considerable number of instances of this kind. I think, however, we must look to the peculiarity of the weather which we have lately had, especially its dampness, as a cause. But here I am puzzled, as I have found that an increase of moisture favours an increase of typhus, and showed this to be the case in a paper read before this Society on January 17th, 1866; but this will not explain the production of enteric fever under similar circumstances. I believe myself that the conditions favourable to the production and spread of typhus and enteric fevers are more closely allied than is generally supposed to be the case. I shall presently show that all forms of continued fever are frequently produced under identical circumstances.

I must now proceed to the second part of my subject; namely, the distribution of fever in Dublin. If we look to the distribution of fever in Dublin, as shown by the death-returns of the Registrar-General for the five years ending September 30th, 1871, it will be seen that of the 1,476 deaths from fever during that period, 922 were on the south side of the city, and but 554 on the north side. This is not merely owing to the larger population of the south side than of the north; for the ratio of deaths to population on the south side of the city was 1 in 149.8, while it was but 1 in 177.5 on the north side; the annual average being 1 in 977.3 for the north, and 1 in 746.1 for the south side. This state of things is easily accounted for when we compare the population per acre on the north and south sides: it being but 57.9 per acre on the north side, while it is 70.8 per acre on the south side; and this gives but a faint idea of the density of the population in the fever districts. Thus, in Wood-quay Ward, which includes a considerable portion of the worst fever-district, the population is 145 per acre, which we may compare with Fitzwilliam Ward, part of which nearly touches on the fever district, where the population is but 52 per acre. It thus appears that the great bulk of the fever of Dublin occurs on the south of the city. To this side I shall confine the rest of my remarks with regard to the details of the distribution of fever, and the localities whence the Cork Street Hospital patients are derived. This portion of the enquiry will consist of three parts: (1) the districts where fever prevails; (2) the streets which furnish the largest number of patients; and (3) the homes of the patients. With a view of making the inquiry as complete as possible, I have taken into consideration the streets which have furnished fever-cases during the past ten years; but, as it would be of little practical utility to know the exact locality where fever prevailed several years ago, I have only gone minutely into the inquiry for the two years ending September 30th, 1871. This enquiry embraces the south side of the city only, which I may call the Cork Street Hospital fever-field; while the north side may be called the Hardwicke Hospital fever-field. Some cases of fever pass from the south side to the Hardwicke Hospital; and some—perhaps a greater number—come from the north side to the Cork Street Hospital; but practically, Cork Street gets all from the south, and Hardwicke all from the north side. The same allowance has also to be made for the cases admitted into Steevens', the Meath, Sir P. Dun's, the Adelaide, and City of Dublin Hospitals. These act as disturbing causes, especially each in its own locality, and, of course, impair the accuracy of some of the

* By Thomas Wrigley Grimshaw, M.D., Dub., Fellow and Censor of the King and Queen's College of Physicians; Physician to the Cork-street Fever Hospital; Physician to the Lecturer on Materia Medica in Dr. Steevens's Hospital; etc. Read before the Medical Association of the College of Physicians, November 15th, 1871.

results as marked on the map; but they will not, I think, affect materially by conclusions as to the distribution of fever on the south side of the city. This inquiry extends over two years, and embraces investigation into the circumstances connected with 1,825 cases of fever (including only simple typhus, and enteric fevers) derived from 1,190 houses, and from 266 streets, lanes, courts, and alleys. Although an inquiry into the distribution of scarlatina, small-pox, and other forms of contagious febrile diseases would be of great interest, yet, as these diseases are less within the control of sanitary measures than the continued fevers (small-pox excepted), and as it would tend to complicate the present inquiry, I have excluded these from consideration in this paper, and confined my attention to the continued fevers only.

(To be continued.)

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THE opening meeting of the session 1871-2 took place on Tuesday evening at the Institute Rooms, 212 Great Brunswick-street. There was a large attendance of members, and amongst the visitors we noticed—The Right Hon. the Lord Mayor, Sir John Barrington, Sir William R. Wilde, Dr. Carte. R. H. Jephson, A. H. Mercer, J. Woodhouse, Very Rev. Canon Pope, Thomas, Kirk, James Moore, M.D., Belfast; Dr. Ringland, M. A. Hayes, J. E. Wilson, &c.

The chair having been taken by the President of the Institute, JAMES H. OWEN, Esq., M.A.,

The Hon. Sec. (Mr. Thomas Drew, R.H.A.) read the minutes of the last meeting, which were confirmed. He next read

THE ANNUAL REPORT.

The out-going council come before the Institute with a report necessarily brief in the record of work accomplished during the session. In no year of the society's existence, since its reorganization in 1862, have so few events of importance, affecting the status and welfare of the profession, arisen to engage the attention of the Institute and its council. In no year have so few communications and papers of interest been offered by the members at general meetings, and—as, perhaps, as to some extent, consequent on this—in no previous year has the attendance of members been so thin and irregular.

While thus freely recognising in its report a fact, as regards the working of the Institute, so patent to all the members, the council has, nevertheless, most emphatically to record its belief that the session just passed, if somewhat uneventful in one way, has been a favourable and prosperous one for the Institute. Its finances have been prudently administered, and its routine work, in guarding the interests and status of the profession in its relations with the general public, satisfactorily performed. Throughout the session frequent council meetings have been held, and, as the list of attendance in the hands of members will show, fully and diligently attended, and no matter arising affecting the interests of the profession has been uncared for. The council recognize with great satisfaction a growing readiness on the part of both members of the profession and of the general public engaged with it, to seek the counsel of the Institute in disputed cases bearing upon the practice of the profession, the conduct of competitions, and so forth. In the few instances which have indicated the progress of such a feeling the council are led to believe that the interests of the profession are materially served by such a reference.

As respects the scanty supply of papers and attendance of members at general meetings, the council has, as a matter of course, to urge on the members greater zeal and industry. At the same time, it is better, once and for all, to recognize the state of circumstances which lead to this, and, on fair and full consideration, to admit that the programme, founded—too ambitiously—on the working of societies five times more numerically strong than ours, is not possible of fulfilment. We take into consideration our comparatively limited numbers in this country, the absence among our ranks of any of the class of architectural *dilettanti* who contribute so extensively to the entertainment of kindred societies elsewhere, and the laborious round of occupation in which we are nearly one and all engaged. We find from our experience that no subject of real paramount interest has ever been brought forward, with due notice, in those rooms that it has not commanded a satisfactory and interested audience; and we recommend for the

consideration of the Institute and council of the ensuing session such a condensing matter of interest brought forward, and, perhaps, diminution of the number of evening meetings during the session, as shall be in more harmonious proportion with our numbers, and with our abilities and zeal.

There are other matters of far more vital importance, far more urgently pressing on the energy of sessions to come, than the mere provision of papers of a desultory character for evening meetings. We are brought face to face with this fact—that, wanting, as we do, a museum of art and architecture in this country, of an available library, of any organized means whatsoever for the artistic and scientific training of young men in Ireland aspiring to architecture; in the face of the advantages for technical education enjoyed elsewhere and the progress being there made; that our immediate interests are no less engaged than is there imperilled the very existence of a distinctive school of native architects such as we have in the past dwelt on with some measure of pride.

The papers contributed during the session were—by the President, "The Annual Address;" by Mr. J. McDowell Bermingham, Associate, "On the President's Address and Building Surveyors;" by the President, "On Sundries" (brickmaking, cement, &c.); by Mr. Thomas Drew, R.H.A., Hon. Sec., "On Props and Stays to Old Buildings" (from M. Viollet-le-Duc).

The volume of Transactions for the past sessions, fully illustrated, is at length completed and ready for issue to members and to other professional and kindred societies.

The Fitzgerald bronze medal, as in past years offered for the best set of measured drawings of some ancient Irish building, was this year awarded to Mr. Wm. Butler, Associate, for a meritorious set of drawings of Christ Church Cathedral.

An annual exhibition was not held last year, nor is one inaugurated to-night, nor do the council contemplate that an annual exhibition will be hereafter practicable. Experience has proved that the members of the Institute are too few in number and too busily occupied to provide every year the sufficient supply of "show" drawings necessary to make a strong exhibition. What the council would impress on the members is to exercise greater diligence, year by year, in bringing before the public what Irish architecture is doing at the exhibition of our kindred society, the Royal Hibernian Academy, triennially, or at other convenient intervals. A re-collection of such works might profitably take place in a distinctive architectural exhibition of our own.

A conference of the architects of the united kingdom took place this year in London, under the auspices of the Royal Institute of British Architects; thus, it would appear, and properly, superseding the work attempted by the Architectural Alliance, and for the present, at least, suspending any action in the adhesion of this Institute to the latter body. The conference was officially attended by our president, and unofficially by several Irish architects; and the council believe that in the continuation of such annual gatherings and united discussions much advantage must accrue to the interests of the profession.

In the past year our ranks have been fairly recruited; our losses by death unusually heavy. In March last died Mr. Wm. G. Murray, R.H.A., well known to us all by his connexion with some of the most important works in the city of Dublin in late years; in former years an active member of this Institute. Mr. Charles Sherry, but recently elected a Fellow, a young architect of great energy and original ability, the architect of the new theatre and other works of considerable importance in Belfast, met his death by an untimely accident in August last.

The close of one other life—a life connected with the whole history of architecture in this country throughout the whole of this century—requires a special notice at our hands. Sir Thomas Deane, R.H.A., an ex-President of the Institute, honoured and respected throughout the profession, and no where more so than within the circle of this Institute, where he was once so well and genially known, since the death of Mr. Jacob Owen, looked on by us as the father of the profession in this country, closed a long, honourable and successful career in October last. Sir Thomas had been compelled, from increasing age and infirmity, to retire from the Institute in 1868.

Mr. John Bourke, fellow, the architect of many important ecclesiastical and charitable works in connexion with his own communion, was removed suddenly within the present month.

Mr. Thomas Collot, student, a youth of much promise, to whom the institute a year before last awarded the Fitzgerald medal for his drawings of Grey Abbey, county Down, died in April last.

By resignation Mr. Wm. H. Lynn, A.R.H.A., and Mr. Wm. Fogarty, F.R.I.B.A., have ceased to be members of the Institute.

The council has, in conclusion, to state that the very insufficient income at its disposal has been more economically administered during this year by advan-

tageous sub-letting of parts of its premises not absolutely required. Its outstanding liabilities may be estimated at £100. The council, however, confidently anticipate that were their efforts seconded by members in arrear of subscription in a settlement of the amounts standing against their names, and by them, as by other members in a prompt settlement of subscriptions for the current year, not only would all outstanding claims be discharged at an early date, but the nucleus of a small fund begun to be formed for carrying out some of those objects so long cherished and so long deferred from want of funds.

THOMAS DREW, R.H.A., Fellow,
Hon. Sec.

The president then delivered his inaugural address, which will be found on another page.

An interesting conversation ensued, in which the several commercial, legal, architectural and archæological topics glanced at in the president's address were commented upon.

Mr. T. N. Deane, R.H.A., was called to the second chair, and a vote of thanks passed to Mr. Owen.

The Lord Mayor, in acknowledging the compliment of a vote of thanks to himself and the other visitors, said that after the noble and elevating subject of archæology he was almost debarred from entering upon the mundane matter of mud. He attributed the present dirty state of the streets of the city to the want of money. The committee and Mr. Neville had done their best, but the means at their disposal were inadequate. The most expensive work was carrying away the mud, and it must be remembered that the labour of men and the maintenance of horses were more costly. It was contemplated that under their present act £10,000 more than they had would be required, and he advised the citizens to put forth some exertions to raise that sum. At the same time he pointed out that New York and other large cities were as bad, if not worse, than Dublin. The proceedings then terminated.

L A W.

CONSOLIDATED NISI PRIUS COURT.

(Before the Hon. Baron Deasy.)

M'Grath, Appellant; Maguire, Respondent.

In this case a decree was originally granted in favour of respondent by the Hon. Mr. Trench, Chairman of Quarter Sessions at Kilmahnam, in the month of June last, against which decision the present appeal was brought. According to the evidence laid before Mr. Baron Deasy it appeared that in the month of August, 1870, the present appellant, Mr. Christopher M'Grath, who holds a situation in the Four Courts in this city, sought to raise a sum of money from a building society for the purpose of erecting some cottages at Beechwood Avenue, Ranelagh, and with that object in view applied to the present respondent, Mr. Joseph Maguire, architect and valuator, 201 Great Brunswick-street, who is the surveyor appointed by the building society, and whose duty it is to report on the expediency or otherwise of granting loans to applicants for building purposes. The building society having in this case sanctioned the required loan, the appellant instructed respondent to prepare plans and specifications for the proposed cottages, and to advertise for tenders from contractors in order to put the works in hands without delay, and agreed to pay the usual percentage on the amount of the contract.

The plans being completed and tenders received, based upon quantities prepared by Mr. Harford, building surveyor, the appellant failed to proceed with the works, and in due course was communicated with by respondent. Some considerable time having elapsed, and no notice whatever having been taken of any application, process was served and decree obtained.

Appellant, in giving evidence, alleged he merely called about a loan, but ordered no plans. He was strongly supported in this statement by two witnesses (the Brothers Dalton) who swore they were present at the interviews, and that no such orders were

given. This was distinctly denied by respondent, who said appellant was quite alone when he called to his office and gave express orders for plans, &c., and agreed to pay the fees.

His lordship, after a patient hearing of the case, said it was quite clear the plans, &c., were ordered, and animadverted at some length on the fact of no notice being taken of respondent's letters, which were written immediately after the transaction occurred, and which appellant should have replied to and contradicted at the time, if he could with justice have done so.

The real facts of the case being so apparent, his lordship intimated to Dr. Seeds that it was quite unnecessary for him to reply on behalf of respondent, and therefore affirmed the chairman's decree with costs.

CONSOLIDATED NISI PRIUS COURT—Nov. 21.

(Before the Hon. Baron Deasy.)

Kerr, Appellant; Fry and Fielding Respondents.

This was an appeal from the decision of the Recorder in October last, who gave a decree against Mr. Kerr, for a sum of £9 10s. In August the respondents, poplin manufacturers, in Westmoreland-street, arranged with appellant, a gas engineer, of Talbot-street, to erect for a sum of £10, several gas jet illuminations at their premises, in honour of the Royal visit. It was found on the following morning that a portion of the plate-glass front in shop was cracked. Messrs. Fry paid the amount of Mr. Kerr's bill, but proceeded against him for a sum of £20, value of the glass, which it was alleged had been injured thro' the unskilful and unworkmanlike manner in which the gas fittings had been put up. A decree for £9 10s. had been given, and from that decision the present appeal was brought. After hearing evidence very fully on both sides, his lordship decided that the fracture in the glass had not been produced by the jets of gas from the fittings put up, nor through the unskilfulness of appellant, and, therefore, reversed the former decision. A civil engineer, who was examined, deposed that, had the fracture in the glass been caused by heat it would have resumed a stellar form, radiating from a centre. The fracture in Messrs. Fry's window was diagonal, and was probably caused by pressure at the sides of the frame in which it was set, especially as it was shown that the gas had not burned opposite the fracture.

NOTES OF WORKS.

ASSEMBLY ROOMS, NEWRY.—The improvements at this building are now almost completed. Externally, a great change has been wrought, and internally everything seems entirely new. In the large hall the walls have been painted, and panelled with an ogee moulding; neat Grecian cornerpieces give a pleasant and highly-finished appearance to the work. In the ceiling three pretty centre-pieces surround the chandeliers, which have been taken down, and are being renewed. We (*Telegraph*) are also pleased to notice that the ventilation has not been forgotten. Previously there were but two small ventilators, of about four inches in diameter, the number has been increased to four, of eight inches each in diameter. The ante-rooms and the Freemasons' apartments have been re-papered, and some alterations made in the mode of opening and shutting the doors. The railings leading up to the hall have received several coats of paint; and the ceiling has been whitened, giving to the whole an exceedingly fresh and clean appearance. The doors have been oak-painted, and the Venetian window blinds have been thoroughly cleaned. Mr. Andrew Thompson, Sugar Island, was the contractor. The total cost of the work will be about £150.

Christ Church, Kingstown (formerly known as the Bethel), was consecrated on Tuesday, 21st ult., by the Archbishop of Dublin. It has been almost entirely rebuilt from designs by Mr. McCurdy.

The new parish church of Caherconlish, diocese of Emly, was consecrated on Thursday last by the Bishop of Cork, acting for the Bishop of Cashel. The church has been built from designs by Mr. E. H. Carson, architect, at a cost of £1,500, chiefly raised in the parish. An illustration of it appeared in our issue of March 15th, 1870.

The foundation-stone of a new church at Willowfield, near Belfast, was laid on Saturday week by Alderman William Mullan, J.P. This will be the seventh church erected in this town under the auspices of the Belfast Church Extension and Endowment Society. In addition to the free site, Mr. Mullan subscribed £200 towards the building.

On the 19th ult. the First Presbyterian Church, Ballymoney, was re-opened for public worship. The alterations made on the building have involved an outlay of £950. The church is in the old plain style which unpretentious Presbyterianism loved to erect in bygone days. On the north side a new transept has been erected, thereby breaking that uniformity of plainness which previously characterised the structure, and providing extra accommodation for the congregation. On each side this transept has a window of very graceful proportions. A large window has been placed in each gable of main building, and all the old windows have been removed and replaced by others of a more tasteful description, filled with muffled glass in diamond pattern. Above the pulpit is a circular window having stained glass of various beautiful tints. The windows at each side of the pulpit are remarkably neat. A column in alabaster runs up each side, surmounted with floral decorations, above which rises an arch suitably embellished. The outside panes are of stained glass, while those in the centre are muffled, and the general effect is very pleasing. The old ceiling has been removed, and the massive roof principals are now visible, imparting to the building quite a lofty appearance. The ceiling is finished in alabaster, with an appropriate cornice. The principals are well designed, and projecting from the wall at their bases are heavy wooden corbels, with effective stop chamfering. The principals are stained and varnished, picked in with brown, so as to throw the ornamental work into bolder relief. The entrance to the transept in the gallery is spanned by three arches, supported by neat metal columns. The exterior of the windows have freestone and Portland cement facings. At each of the principal entrances there is an overhanging porch. The architects were Messrs. Young and Mackenzie; the contractor, Mr. Moore, Belfast. In addition to these improvements, a pulpit, with choir seats, is about to be erected. The pulpit will be of the platform style, and the general design is remarkably good. The church is heated by a hot-air apparatus, supplied by Messrs. R. Henderson and Sons, Belfast.

The range of buildings extending from College-street to Fleet-street, known as the "George Hotel," recently purchased by Mr. John O'Connor, which have been for some months undergoing extensive alterations and refitting, are now completed. The refreshment bar, which extends about 100 ft., has been tastefully fitted up, with counter top of white marble. The restaurant has been enlarged and entirely remodelled, and the latest improvements introduced therein. The hotel department is approached from College-street by a wide staircase of novel and light-some character. The culinary department is on first floor, and with numerous private and sitting rooms, in this hotel every accommodation and comfort may be expected. The works have been executed by Mr. Judge, under the direction of Mr. Charles Geoghegan, architect.

The extensive wine vaults, lofts and offices of Thomas Laffan Kelly, Esq., Lr. Gardiner-street, are being largely extended and remodelled in accordance with the design of Mr. Charles Geoghegan, architect, under

whose directions the works are being executed by Mr. Grant, builder.

Plans and estimates have been prepared for extending and improving Messrs. Hyam's premises in Dame-street, which, when complete, will present an attractive street frontage of 44 ft., together with additional internal accommodation. The works will be under the direction of the same architect.

ROYAL DUBLIN SOCIETY SCHOOL OF ART.

This society has recently received from the Department of Science and Art three very interesting specimens of water-colour art, of the following distinguished masters, viz., "By Road with a Gipsy Tent," by David Cox; "Sunset, Blackheath," by Cooke, R.A.; and "Rinne Castle, Evening," after J. Crowe, senr.; a very nice study from the life, remarkable for its facile and simple treatment, has also been received.

THE ROYAL IRISH ACADEMY.

We have merely time in our present issue to state that there was a general meeting of the members of the Academy held at their house in Dawson-street on last evening, at which the following papers were read:—

"On Earl Stanhope's alleged Imperfections of the Tuning Fork," by Michael Donovan, Esq.

"On a fragment of Cormac's Glossary," by Whitley Stokes, LL.D.

"On a new type of Clochaun in the Co. Mayo," by G. H. Kinahan, Esq.

In our next issue we may have occasion to offer some observations for the consideration of those interested in the well-being of this historical society.

PLANS OF COTTAGES AND OUT-HOUSES ON THE ESTATE OF THE DUKE OF LEINSTER.

Our illustration to-day represents plans and elevations of a labourer's cottage, and the plans of the out-offices, out-houses, cattle sheds, &c., being a continuation of the plans already given of farm houses, cottages, and other buildings now being erected on the estate of the Duke of Leinster, under the direction of his grace's agent. The cottage in this instance is of the simplest kind, yet when everything is considered in connection with its surroundings, materials used, the drainage, &c., we must say that it is far in advance of the usual class of dwellings in which our labouring population are forced to dwell. It would be well, indeed, for the morals as well as for the comfort of our agricultural labourers, that they could be blessed with the possession of two separate sleeping rooms beside an ample kitchen.

It will be seen on reference to the plans of the out-buildings that what was heretofore left to chance in labourers' and small farmers' dwellings in Ireland is here systematised by a proper arrangement in connection with the yard, manure pit, and pighouse; the fowl-house is raised over the pighouse. The cattle shed is 64 feet by 12 feet in clear, with iron pillars in front. Cut stone blocks are placed under the pillars, and the roof is secured by one-inch wrought iron tie-bars. In the plan of fire-place, of which a section is given, the construction will at once be seen of the hot-air chamber.

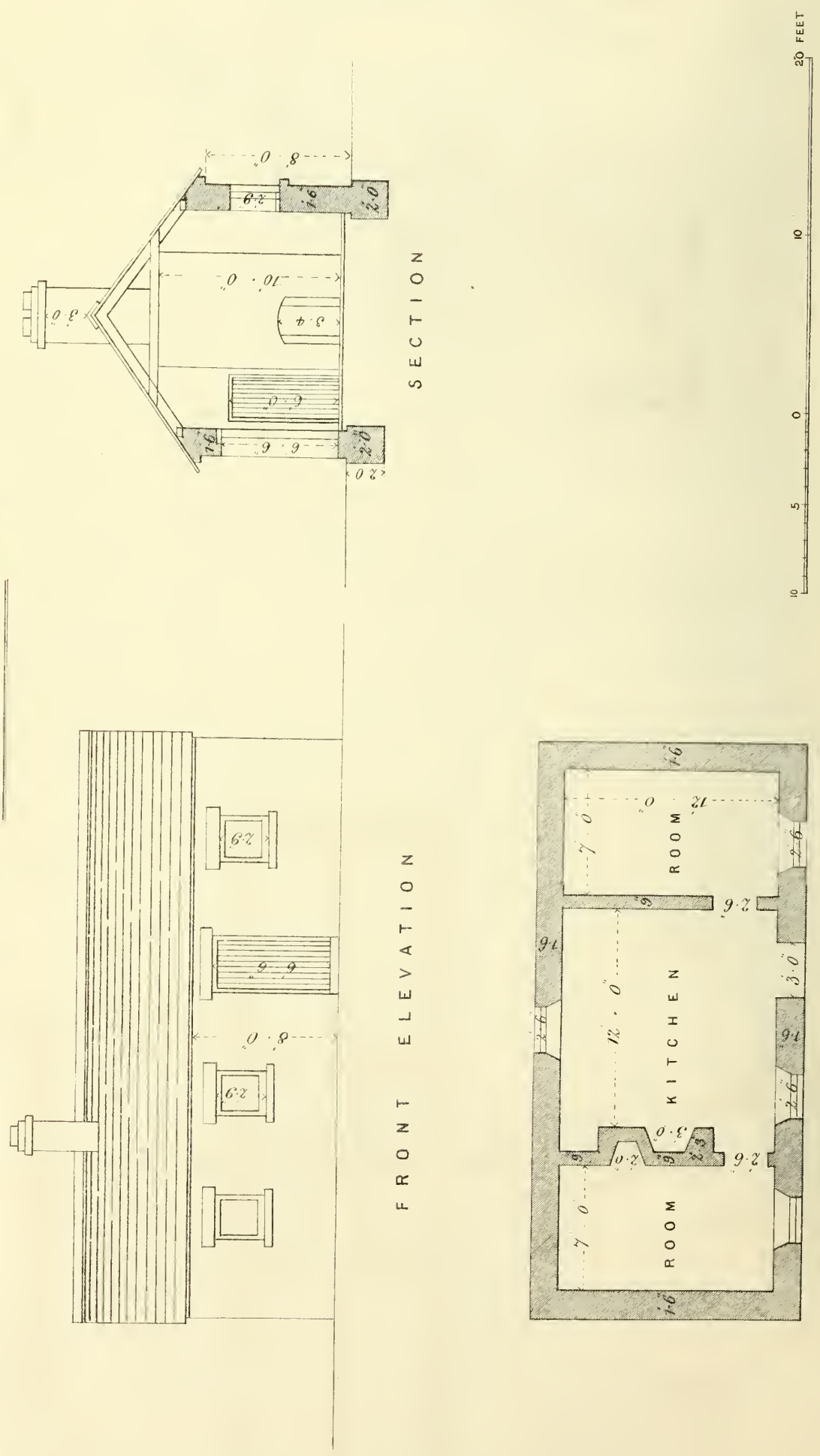
In giving the last of the plans of these new buildings on the Duke of Leinster's estate, designed and erected for the considerate purpose of improving the condition of his tenantry, we have to reiterate our satisfaction at the advancement made in this direction. Reports already reach us from other parts of the country, north and south, of similar efforts being made. We are glad indeed to hear of it. Though some of these efforts may fall short of the improvement we would like to see effected, yet in their



PLANS OF COTTAGES

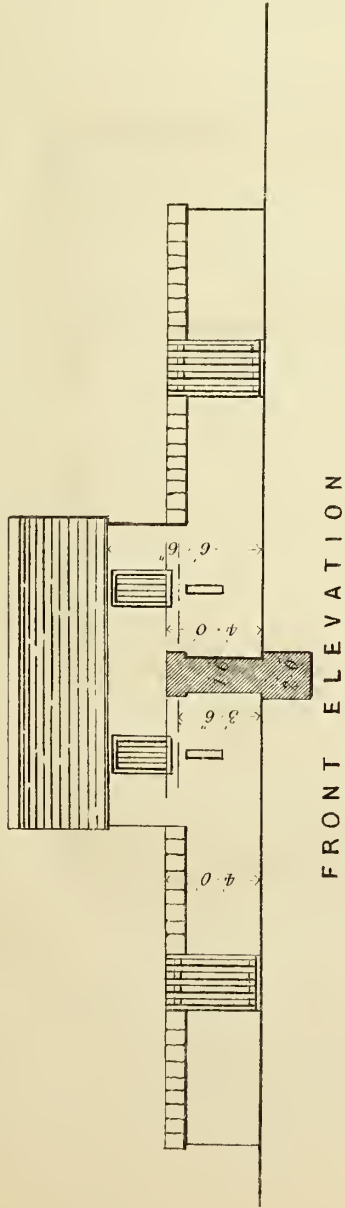
Erected on the Estate of His Grace The Duke of Leinster

LABOURER'S COTTAGE.

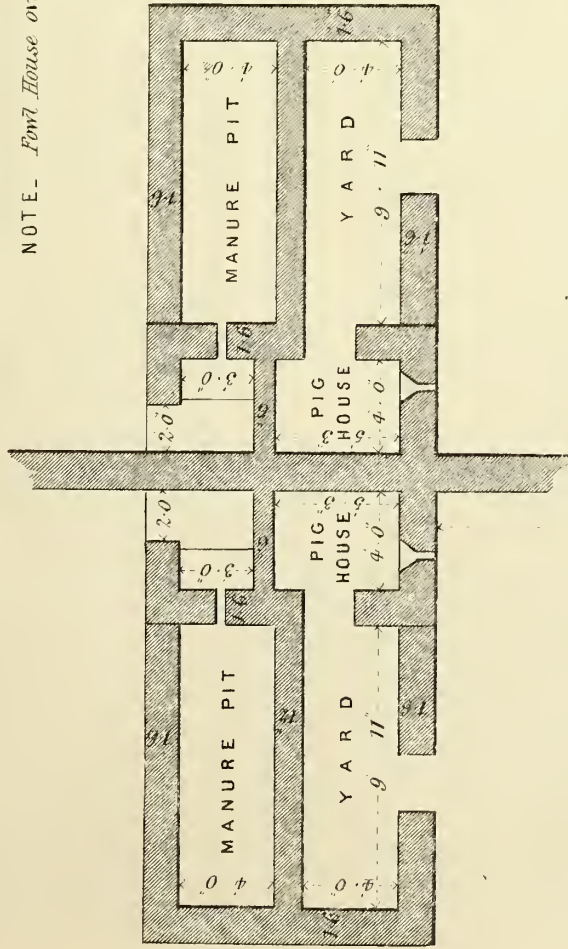


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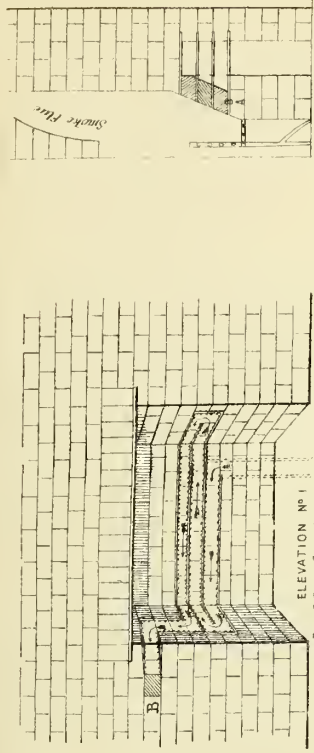
OFFICES



NOTE. Fowl House over Pig House.

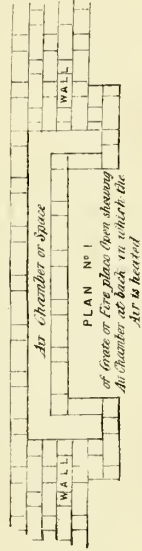


PLAN OF FIRE PLACE WITH HOT-AIR CHAMBER AT BACK

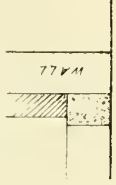


Section through back of Fire place showing construction of the HOT-AIR CHAMBER
A - Fire Brick
B - 9 x 1 Fire-clay Tiles

SCALE OF FEET
0 1 2 3 4 5



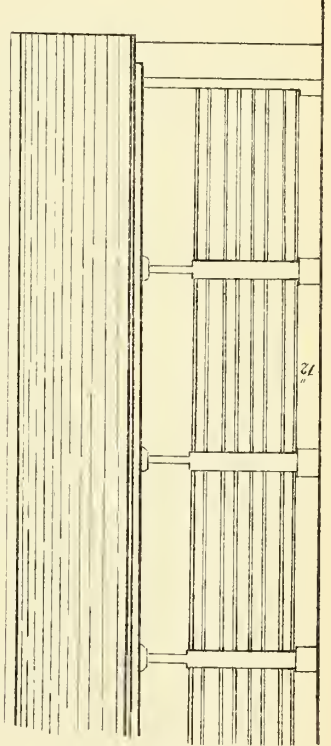
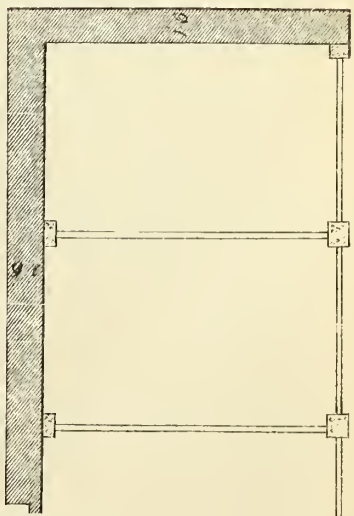
STONE BLOCK & IRON PILLAR NEXT END WALL



SECTION OF SINGLE IRON PILLAR NEXT END WALL



PLAN OF CATTLE SHED WITH IRON PILLARS AT FRONT



VENTILATOR IN WALL AT BACK



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erection they are promising symptoms of a healthy desire on the part of some of our Irish landlords to see and aid in the better housing of the agricultural labourers of this country, whose condition as to human dwellings is in many instances a scandal to Europe.

We must defer till next number our further remarks on this subject; we shall then probably print the various estimates of cost.

THE PRESIDENT'S ADDRESS.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

GENTLEMEN,—I have much pleasure in greeting you with a hearty welcome on this the first night of our new session, which ought to be a very busy one, if the Institute should take its proper position in relation to current events. Excepting some eccentric enthusiasts, the whole nation is sick of politics, and is anxiously awaiting the preliminary steps to be taken in those social and economic reforms, the necessity of which has been so long apparent, and the postponement of which has been so impatiently borne. Among these questions there are some, and those by no means the least important, in which we, as an Institute of Architects, have the strongest interest, and on which we are in duty bound to express strong opinions, and to arouse them in every possible form in order to reiterate and fix public attention upon them. Let us consider first our own city. It may be some gratification to you to hear that a friend of mine recently returned from Paris reports that, next to Dublin, it is the dirtiest place in the world, but in spite of the utter depletion of all her resources Paris cannot deprive Dublin of her bad pre-eminence in dirt. At no period of her history was Dublin more flourishing. If the ancient mansions of the nobility are occupied by tenants of an inferior grade, and the glories of some of our streets and squares have passed away, we point instead to the miles of villas stretching along every road leading out of the city. If we are told that the Linen Hall is empty, or occupied only by troops, we can reply that the trade has only followed its natural course, and quitted an unnatural and circuitous channel, while our silk goods are finding their way into the markets of the world, and our river is full to overflowing of shipping, our Banks are prosperous, our railways increasing daily in traffic, the revenue returns fully maintained; then why are we kept in a state of filth that is disgraceful and disgusting? I was once visiting a lunatic asylum that had been finished some two or three years, and found the grounds in front of it, except where an avenue had been constructed, in the same state as when the builder left it. In some surprise I asked the resident physician why he had not got the place put in order, "Because," said he, "I have thirty-eight Governors;" and I am afraid that so long as the Parliament of sixty-three members sitting at Cork-hill have to manage the cleaning of the city it will remain in the same disreputable condition. Looking to the state of our streets, especially the bye-streets and lanes, and considering the unutterable filth that is daily and nightly poured over them, and left there to be ground and trampled into mud or dust by passing vehicles or pedestrians, I often wonder that the death-rate of the city remains so low. I am sure that if the statistics of disease could be made available we should find the rate of preventable disease enormously high, and I can only account for our comparative immunity from loss of life consequent thereon, by the circumstance of the city being so abundantly provided with charitable institutions for the care of the poor and the working classes when sick, and the courage, energy, and skill of the members of the medical profession.

Another matter of most urgent necessity everywhere, but especially here, is a reform in the laws which relate to buildings. Properly speaking there is at present no such law in existence, at least if we except local laws, confined in their

operation to certain definite limits, and generally speaking only treating of buildings in one relation, viz., as the community at large may be affected by them. Apart from these there is no law worthy of the name from which any rules can be deduced for the guidance of parties who are proposing to carry out works, by following which they can be certain of not having to incur damages and law costs in addition to the builder's bill. As far as I can see my way into the matter, lawyers and judges from time to time have built on the general principle that no man should be allowed his freedom of action beyond the limits where injury or annoyance to his neighbour would arise. Upon this general principle, applied to building cases, sundry decisions have been founded, which being collected together form a sort of body of law—but such a great, overgrown, unwieldy carcase, so contradictory in its dicta, so uncertain in its directions, as to be useless for all practical purposes, for the defence and protection of honest men, while it provides the amplest facilities and gives every possible encouragement to a bold, unscrupulous assailant. To some extent the difficulty arises from the fact that the decisions are based upon an untenable theory, viz., the supposed absolute right of a man to the continued enjoyment of what he already possesses, as if one were to assert that two or three broad-shouldered ruffians, linked arm in arm together, might of right swagger along, occupy the whole breadth of a public footpath and drive everyone out into the mud of the carriage way. In such a case the law, in the shape of a policeman, would give a practical lesson that liberty must give as well as take, and that freedom of enjoyment has certain limits, which the policeman aforesaid would point out and enforce the observance of; another great cause of the difficulty is that few judges appreciate the technicalities involved in building cases, and this heightens immensely the difficulty of applying general principles, and of finding any case among those previously decided which will serve as an authority as to any point under consideration. Now what we want is a code of building laws applicable to all these several relations arising in building cases. To enumerate them briefly. These are, First. The relation to the community at large. Under this head should be laid down regulations to insure that buildings should be safe, not injurious to health, and not obstructive to general convenience. Nearly all the regulations in this respect would be in the direction of restraint of liberty. They would have the effect of protecting the public from the effects of ignorance, carelessness, wilful neglect or undue parsimony on the part of the builder, and from all attempts at encroachment on the rights of the public to space or view, by regulating the alignment and projections of houses. Of this class of legislation there are excellent models in the several Metropolitan Buildings' Acts of London, most of the provisions of which might, with great advantage, be made general.

But the most important and most urgently required reform is that which includes the mutual relations of buildings. To take down and rebuild an old house in this city is like leading a forlorn hope, and the more rotten and valueless the adjoining property, the less chance there is of escaping without an action with at least one neighbour. Let us consider the process—let us follow in imagination the various steps in the taking down of an old house, and rebuilding it. The plans have been made—specifications written—tenders have been received and accepted—and three or four skins of parchment have been filled with a contract (much to the profit of the lawyers, but of no great effect, good or bad, on the work) probably containing a clause binding the contractor to bear the employer harmless against any risks that may arise from quarrelsome and litigious neighbours (it is not so expressed, but that is the meaning)—a most dishonest clause, but still gene-

rally accepted by the builder, who trusts to the chapter of accidents to bear him harmless. The contract is duly signed, sealed, folded, and red-taped, and all parties to it hope that it will not be exposed to the daylight again, and the builder commences his work. As we are allowed to pick out our specimen as we please, we will suppose that the house to be taken down is one of a row with continuous slating and gutters. The builder's first work is to strip off the slating, and here he becomes exposed at once to an action for trespass at each side. At each side there is a party wall, and he has to strip the slating to the centre of this wall, which you know very well is impossible without stripping either more or less than to the line drawn through the centre of the wall. He may have to raise on each wall. His employer has a right to the use of the wall—every lawyer and every law-book will tell him so—but now mark this. I am quoting an actual opinion given in return for a goodly fee by a Dublin Q.C. not so very long ago. You are liable to action if you remove, even temporarily, his slates to enable you to use your undoubted right of building on the wall. The case on which this opinion was given was even stronger than I have stated, for there was clear proof that the use of it which it was sought temporarily to disturb, was usurped, and that the wall belonged wholly to the party who was desirous of raising it. But suppose our imaginary builder has escaped this danger, we next come to the party walls themselves. Now what is the condition of many, if not most, of the party walls of town houses? Are they not for the most part built of inferior materials—frequently split from top to bottom from the greater substance of heavy chimney stakes, and only not falling because they are propped up by the floors? Well, supposing this to be the state of things, and that the new building is intended to be of a more substantial character, with its flank walls rising above the adjoining buildings, what is to be done? Now we all know very well what would be done. The right to the party wall would be abandoned, and a new wall would be built within the area of the house, at great waste of space—a most valuable commodity in town structures—and the parties will think themselves very lucky if they escape the thousand and one causes of action that perverse ingenuity can rake up, even when the utmost care has been taken—every right yielded, and great expense been incurred, in order to avoid every chance of injury. But is this right? Should such a state of things exist in a civilized community? Is there any necessity for it? Has any one any difficulty in conceiving how arrangements might be made which should avoid the necessity of any such sacrifices, or render such contemptible actions impossible for the future. If the duties of the owners of adjoining property were as well defined as their rights—if it were plainly and clearly laid down that the right of enjoyment does not include the power of limiting—dog-in-the-manger-like—your neighbour's use of the joint property, including so much temporary disturbance or suspension of use as may be unavoidable, such actions must cease. There is a law at present, although a cumbersome and hard-to-be-enforced one, by which you can compel the abatement of a nuisance prejudicial to health—why should not this interference for the common benefit of both parties be extended to include the case of such utterly rotten walls as we see daily kept up at great expense and risk, simply from fear of the legal penalties attaching to interference with them. And now let me mention that though the law is bad, and administered in the blind, fumbling, stupid way peculiar to ourselves, the fault is not all on the side of the lawyers. How many architects have the honesty and courage to say to a client in such a case, that he ought to do as he would be done by, and even bear a little rather than insist on doubtful rights in an unneighbourly fashion? How many actions would be nipped in the bud if architects would only give the sound advice to take advantage of the operations next door to get cheap im-

provement to what was common to both effected. Surely this ought to be our rule of conduct. We ought to look on ourselves as impartial judges and counsellors, not hired partizans. Depend upon it, such a line of conduct is the best paying in the end. A client may be pleased at the moment; but when the rejoicing over a victory is over, and the bill of costs and cool reflection succeed to the excitement of the contest, he will feel, that next to defeat at law, success is the most painful operation. When he finds himself suffering in pocket (and perhaps in name), and with a neighbour, who might be a friend, converted into a bitter and permanent enemy, he will entertain anything but pleasant feelings towards the professional adviser who might, but did not, prevent him from having his recourse to his *legal remedy*.

One word more, and I will have done with law. Not only is clear and well-defined, and in some respects very stringent law required, but it is also necessary that it should be administered by persons who understand it. It is essential that the ordinary judges should be assisted in building cases—as they are in admiralty cases—by the assistance of assessors—men who from special knowledge are able to weigh the evidence given, and to assign to each portion its due weight. We constantly hear judges professing their ignorance of building matters, and not infrequently evidence of vital importance is unappreciated by either judge, counsel, or jury. The appointment of an architectural assessor would remedy these defects, and be of incalculable advantage to suitors.

I hope I have not wearied by dwelling at such length on what is by no means a pleasant subject. Its great importance to us and our clients must be my excuse, coupled with the fact that unless these things are spoken out again and again, and reiterated *usque ad nauseum*, they will never be remedied. I will now ask you to follow me for a few minutes into another subject. Having been directed to make an estimate of the probable cost of putting into a secure state and permanently maintaining the ruins on the Rock of Cashel, my attention was perforce applied in a more particular manner to the peculiarities of the more ancient architecture of Ireland, than had been possible to me hitherto. Like every one who touches the subject, I of course have been seized with “round-tower madness;” but I hope it will prove to be of a mild type, and not without some lucid intervals. I had hoped to have been able to meet you to-night with a tolerably full exposition of some views on this subject, which I have not yet seen expressed, but my official duties, never light, have been unusually heavy this autumn, and I have had other distractions, some pleasant, some very much the contrary, and the subject, although attractive, is not a light one. The books to be waded through are many and weighty—in bulk, if not in matter—and it is not easy to “revive the stones out of the heaps of the rubbish”—especially as most of the modern authors who have dealt with the matter seem to miss no opportunity of dealing a blow with their critical shillelagh on any tempting spot exposed by a previous writer, and these polemical *excursions*, though amusing, take time, and not infrequently induce weariness. Although I am unable to place before you to-night any definite theory, or to support my ideas by any more reliable evidences than are afforded by the general scope of early history, I think you will not be unwilling to hear the story that the Rock of Cashel seems to me to tell. The buildings on this Rock consist, as most of you doubtless are aware, of a cathedral with an episcopal residence attached, and the remains of what seems to have been the residence of the eight vicars choral and their steward, and traces of a fortified enclosure wall. The cathedral is itself a composite pile, its several component parts being—to take them in chronological order—The Round Tower of early but not the earliest type, connected with the eastern angle of the north transept, and entered from it by a passage in the thickness of the cathedral walls. King Cormac’s chapel, which

there is every reason to believe was founded in 1127, and solemnly dedicated in 1134. Next, the general mass of the cathedral property was interpolated between the Round Tower and Cormac’s Chapel by Donald O’Brien in 1169. Towards the west end there are abundant traces of later work, which from their style tally in well with the next recorded event in the history of the cathedral, which was its being set fire to by the Earl of Kildare in 1495 for the sufficient reason “that he thought the archbishop was in it!” But my object in referring to the Rock now is to call your particular attention to the very great differences that exist between the workmanship and whole style and conception of the three principal component parts of the building, viz., the Round Tower, Cormac’s Chapel, and the Cathedral. To start from the latest building it is unmistakably early English in its character, in every respect. It is built of the limestone quarried out of the rock itself, the walling of rubble, with rough rubble discharging arches, and limestone dressed ashlar to all openings, quoins bonding irregularly with the rubble. Although only 35 years have elapsed from the consecration of King Cormac’s Chapel and the solemn synod held therein, yet in the meantime a complete revolution had been effected in ecclesiastical and architectural thought (at that time more closely connected than ever afterwards), and the building which was erected to connect two structures so thoroughly native as the Chapel of Cormac and the Round Tower, was in design and execution exclusively foreign. The contrast between the two buildings, so singularly grouped into one, the short interval that elapsed between their finishing the one and the building of the other, coupled with the well-known changes that were taking place both in ecclesiastical and lay affairs, and the marked identity of the latter building with ecclesiastical buildings of about the same date in England, and through western Europe generally, force one irresistibly to the conclusion that the older building is native in its origin and design, and is the work of native artists, and that it exhibits to us in its highest stage of development a style of architecture, the first beginnings and rudimentary elements of which were certainly of exotic, probably of eastern origin, but which had arrived at its then state, without admixture of foreign ideas, or any assistance from without. King Cormac’s Chapel is built of freestone, all of ashlar, inside and out; the beds are all thin as a rule, but level or intended to be so, and great pains have been bestowed on enriching both the interior and exterior with carvings. For its period, or in its style, it is a perfect gem, and much credit is due to Archdeacon Cotton and those who assisted him, for the praiseworthy and conscientious manner in which the reparations were effected after 1848. The Round Tower is an equally well marked specimen of the work of an earlier period; the date of it is not known, but as the only record of the building of a round tower is that of Tomgrany, in the county of Clare, in 965, and the notices of a round tower at Cashel are both numerous and early, we cannot be mistaken in assuming that this tower must be at least as old as the Tomgrany one, and therefore that about 200 years elapsed between the building of the Tower and that of Cormac’s Chapel; and if we accept this conclusion as fairly deducible from the history, the buildings themselves fully confirm and carry out the idea. The tower is built of freestone as well as the church, but with no attempt at ashlar work whatever, properly so called. The stone forming the doorway and the four openings at the top of the tower being such as might easily have been got by selection from a large quantity of stone when quarried, and roughly dressed to fit their places. The main body of the work is made up of courses of stones of the most irregular shapes and heights, the courses being of unequal height in themselves, all pointing to spending a great deal of time and pains in selecting stones that would fit naturally and

require very little dressing. So much has this struck me that I have asked myself the question, “Could the workmen who built this tower have had tools of iron to work with?” And the nature of the work, and the selection of an easily-wrought material brought from about eight miles away in preference to the hard limestone, which was to be had on the spot for the mere trouble of quarrying it, both seem to me to point to an answer in the negative. To return, however, to the point I was discussing, the great difference between the sort of building in the tower and in Cormac’s Church, seem to me to point irresistibly to the conclusion that there was a native school of architecture, of which we have in the tower an example in an early stage of progress, and that its development into the form represented by Cormac’s Chapel, was spontaneous and native, and in the same sort of way as particular dialects are developed from one common mother tongue; and as I suppose no one would ever think of calling the Irish language Greek or German, so I do not think I am asking too much in asking, as a small instalment of “Justice to Ireland,” that her native architecture shall no longer be called Saxon. I claim for it the name which its distinctive character deserves, viz., Irish. No one would call the Book of Kells a “Saxon” MS., and I see no reason why our Irish architecture, which exhibits so many specimens in stone of a similar style of art, should be robbed of its national name. It would take you too long now to dwell further on this subject; I hope to be able to return to it some time during the ensuing session, and to trace out for you, if the materials and time at my disposal will permit, the rise and progress of the art among the Irish clans, until its sudden extinction with the other institutions of the time that were peculiar to the island. Meanwhile I hope you will only set me down as suffering from the mania to which I before alluded, in a mild and modified form; if it should prove catching, and I should thereby get assistance in the task I have set before me, there is a large field of observation and collection of facts and examples open, and the labourers cannot be too many.

ACCIDENTS.

CAR ACCIDENT.—The County Surveyor of Wicklow, Mr. H. Brett, met with a serious accident a few days since whilst in the discharge of his duties. It appears he was standing up on an outside car, preparing his wraps for a lengthened drive over the roads, when the horse, just taken out fresh from the Wooden-bridge Hotel stables, started suddenly, which caused Mr. Brett to be flung violently to the ground over a pile of road metalling.

About two o’clock on Monday, just as a number of men left a large corn store rented by Messrs. White Brothers, Waterford, the entire flooring of the building, four storeys, gave way, and fell with a dreadful crash. There was a very large quantity of grain on each of the floors at the time, the greater part of which is destroyed.

On Thursday morning, between four and five o’clock, a large four-storey tenement in Old Wynd, Glasgow, fell with a crash into the street. For some time past it was considered that the building, a very old one, was in a dangerous condition, and the tenants were warned to leave. Of these, twelve, with their families, obeyed the warning; but six, numbering in all about fifty persons, including the inmates of a common lodging house, seemed resolved to remain at whatever risk. This morning they nearly paid with their lives for their temerity. At the hour mentioned a constable happened to pass the building, when he heard a creaking sound, as of a beam of timber yielding to a severe strain. He at once, at the risk of his own life, rushed up the stairs and awakened the slumbering and unconscious inmates. This was effected in a few minutes; but not a moment too soon, for scarcely had the last got clear of the building when it fell. This occurrence was to some of the rudely-disturbed sleepers the first sensible intimation of the danger they had escaped through the vigilance of the police-officer. Not an article of furniture was saved. All the rescued individuals were without a stitch of clothing except their night dresses, and in some cases these were only nominal.

ROCHESTER CASTLE—CORPORATE VANDALISM.

CORPORATIONS in general are very conservative. The conservatism of some is shown by a respect for the architectural beauties of their surroundings. Our corporate authorities for some years past have betrayed an extrafondness for dirt and excessive taxation. News reaches us from the banks of the Medway, in Kent, of an act of vandalism that ought to earn for its promoters and perpetrators the unenviable notoriety and name of the "Vandal Corporation of Kent." There are very few who have not heard or read about the historical Cathedral and Castle of the town of Rochester, and of its associations. The corporation of the town being anxious to provide a new entrance to the Castle Garden, have enlisted the services of a batch of the Royal Engineers to blast by the aid of gunpowder an opening right through the bastion wall of the castle. Gun-cotton and gunpowder have been used to force an entry through walls eleven feet thick. It may be guessed that the force of the explosions are not inconsiderable when it has been found necessary to cramp or fence the wall around to prevent the stones from flying on all sides. The butchery enacted at the instigation of the pig-headed corporate functionaries of Rochester will no doubt be remembered for many a long year to their discredit. Rochester Castle is one of the most ancient and interesting specimens of the castellated Norman type of architecture, and not a stone of it should be disturbed, unless for the purpose of repair. We have more than once during our journeys in the sister island passed through Kent, a county rich in architectural remains. We have looked upon the grey grim walls of the old castle and admired them, not as interesting ruins, for Rochester Castle could not be said to be a ruin, for it was a very perfect specimen of its class. The building must be more or less shaken or injured by the scandalous action of the authorities in Rochester, but even if it has not, this open breach in the walls of this old Norman castle is an act in direct and flagrant violation of national opinion, and that respect which should be paid by every true Englishman and Irishman to the monuments existing of our ancestors.

THE SANITARY CASE OF DUBLIN STATED.

IN our present issue an abstract of the first portion of Dr. Grimshaw's paper will be found. It demands instant attention, not only on the part of the Corporation and the Medical Officer of Health but of the Government. Dublin either is or is not a plague spot, dangerous—yea, deadly dangerous—and chronic scandal to its local rulers; or there is an unintentional exaggeration of her afflicted condition given to the public. We incline to the belief that the sanitary state of Dublin is in many respects as bad as it can be, and we have preached these facts over and over again until their constant iteration sounded in our ears as a same announcement, though still an imperative duty on our part to make it. There is evidently something wrong, something grossly careless, in the conduct of our local rulers, that admits of such an exposition of our state as that revealed in the paper of Dr. Grimshaw. The Corporation must either improve at once its mode of attending to the sanitary wants of Dublin, or it must give way to the appointment of an independent directory, to be appointed by powers vested in the Local Government Board. By way of preliminary we would advise a special commission and visitation of the different districts of north and south Dublin. The Registrar-General's return, if true, is ominous, and if incorrect it is equally ominous. As for the Corporate statistics we have little faith in them, they are neither satisfactory in their extent, nor satisfactory in their explanation of what they report. If the Corporation will still persist in neglecting those sanitary duties

which they are paid for attending to, and enjoined by law to perform, we know what the issue will soon be. To solve the problem, and put the true case of Dublin's neglected condition before the public, we will if matters do not mend before the New Year, appoint a sanitary commissioner on the part of this journal, whose duty it will be to visit and report on the condition of our people and their surroundings in every part of this city, in a series of letters. We are determined that the true sanitary state of Dublin will be stated for the information of the government, as a satisfaction for the oppressed citizens, and as a warning to local rulers for the future both here and elsewhere.

THE SEAN BEAN BOCT* ON THE PUBLIC HEALTH.

THE truth it may be blamed,
Says the Sean Bean Boct,
Though it never can be shamed,
Says the Sean Bean Boct.
But the truth it must be told,
And the facts I'll not withhold,
Though I'm put down as a scold,
Says the Sean Bean Boct.
I once was strong and hale,
Says the Sean Bean Boct,
But my health begins to fail,
Says the Sean Bean Boct.
There's typhoid far and wide,
And my children—once my pride—
Are dying at my side,
Says the Sean Bean Boct.
Sure doctors don't agree,
Says the Sean Bean Boct,
Yet they will prescribe for me,
Says the Sean Bean Boct,
And they order me port wine,
Bid me take care how I dine,
And "walk out," if its fine,
Says the Sean Bean Boct.
I would walk out if I could,
Says the Sean Bean Boct,
But the flags are thick with mud,
Says the Sean Bean Boct.
And the sewers burst with filth,
And the houses o'er them built,
Breathe unutterable guilt,
Says the Sean Bean Boct.
All these are patent facts,
Says the Sean Bean Boct,
Outside Main Drainage Acts,
Says the Sean Bean Boct,
Which the Corporation know,
And very well, I trow,
But still they let them grow,
Says the Sean Bean Boct.
While the Liffey knows no cure,
Says the Sean Bean Boct,
Plague will reign secure,
Says the Sean Bean Boct,
And the municipal scheme
Will live on as the cream
Of Jobbery supreme,
Says the Sean Bean Boct.
What boots it if we meet,
Says the Sean Bean Boct,
Death in every street,
Says the Sean Bean Boct,
If the special committees
Can swell the lawyers' fees,
And tax us as they please,
Says the Sean Bean Boct.
We've prayed quite long enough,
Says the Sean Bean Boct,
Let us now "lay on, Macduff,"
Says the Sean Bean Boct,
And cursed be he who shrinks
From speaking what he thinks
Of civic shams and stinks,
Says the Sean Bean Boct.

CRVIS.

IRISH AND ITALIAN MARBLES.

UPWARDS of two centuries ago Dr. Peter Lombard, Catholic Primate of Armagh, directed attention to some of the industrial resources of Ireland, in his work, "De Regno Hiberniæ, &c."—resources then utilised and now neglected. Boate and Molyneux followed

after some time, and later again Dr. John Rutty in his "Natural History of Dublin," and our great mineralogist and countryman, Kirwan. The latter distinguished person startled Europe by his genius and scientific attainments. A quarter of a century ago Sir Robert Kane, in his "Industrial Resources of Ireland," awoke the country once more from its lethargy on the questions discussed by the former writers.

We fear that our countrymen still require working-up to a sense of their position and humiliation before Europe. With every resource that could enrich a country, our nobility, gentry, clergymen and commonalty of all religious denominations are prone to look abroad for the obtainment of things that they could procure of equal value and beauty at home. If a public building, a church, or a cathedral is about to be erected, the client quite as often as the architect or builder must needs obtain stones and marbles or wrought church plate or iron work from some continental nation. It is fashionable, perhaps, in these days to dress our public buildings in borrowed plumes, as well as dressing ourselves in foreign cloths and fashions; but the example is a pernicious and mischievous one, and it is sure to recoil some day to the injury of every native interest.

For counter tops, table slabs, chimney-pieces, wall lining, ornamental panel work, altars, tabernacles, church tablets and monuments, and various other uses, many kinds of marble are used at the present day. We have in Great Britain and Ireland specimens of marbles even suited for purposes of statuary. The quarries of Kilkenny yield marble equal to those of Italy. We would like to hear where can marble of superior beauty for church, ornamental, or monumental purposes be found to the Kilkenny and Connemara black and green marbles. Great quantities of these two marbles have been used of late years in England. Bristol, Sussex, and Derbyshire marbles possess their own special beauties, and are remarkable for containing shells. The encrinital marbles of Derbyshire, and the Cornwall serpentine and steatite species are also valuable. We have little need, unless in exceptional cases, in resorting to Italy for marbles. Her Carrara blocks may be white and pure, but it is age and immemorial usage that keeps the Carrara quarries before our eyes. Massa and Serravezza, in Italy, give us white and coloured marbles; La Spezia, Moriti, Elba, Campiglia, Gorfalco, Pisani, and Sienna yield marbles also of good qualities. Then we have Parian marbles, from the Island of Paros, used for nude statues.

What is in a name? There is much, perhaps, in the eye of some. Carrara is, perhaps, a sweeter name than Connemara, and La Spezia has a more euphonious ring than plebeian Ballyragget. The waters of the Nore, though brilliantly historical, lack the classic twirl of the Tiber. Though Rome was not built in a day, can we ever hope to build up the olden credit of this nation, or will we have to write—Alas for Ireland?

JOSEPH WATKINS, SCULPTOR, R.H.A., M.R.I.A.

IT is with regret we have to record in our present issue the death, at the early age of thirty-three, of gastric fever, of the above rising Irish sculptor. His adoption of the profession was not of many years' standing, but during that time he had given considerable proofs of his qualification for the pursuit of the art. His works, though limited, are creditable to the profession and to his country. Had he lived, his early promise would not be belied. In every effort of his chisel, there was evidence of marked improvement. He possessed industry, a love of his art, and it is another sorrow added to our many regrets, that the School of Irish Sculpture, which Edward Smith founded, is again weakened. We have too few resident artists amongst us to spare even one to be taken away suddenly from our midst.

BOOKS RECEIVED.

Picturesque Architectural Studies. By W. Young, Architect. London: E. and F. N. Spon.

PICTURESQUE truly, and supplying some good examples for artistic and architectural study are Mr. Young's designs. Parts 2 and 3 under notice contain 18 plates, with descriptive letter-press, embracing plans of cottages, gate-lodges, semi-detached houses, dwellings suited for vicarages and parsonages, cottage and village hospitals, and general suburban and country gentlemen's houses. We have also plans and elevations given in view of converting old-fashioned cottages and dwellings into much needed cottage hospitals—in situations where expenditure and the economy of it have to be considered. The plans in general are good, and the designs are in most cases without doubt picturesque, and consequently pleasing. The pair of cottages erected at Bushby Heath contain on the ground floor parlour, kitchen, scullery, and pantry, and on the first floor three bed-rooms and linen closet. Space seems to be utilized as far as was possible; the fire-place in the kitchen is an angular one, and owing to the plan and construction adopted in this instance as well as in others, it could not be otherwise. Space is gained, and the sacrifice of appearance in the servants' quarters we suppose will not detract from the harmony of the exterior. The out-buildings are pretty well provided, they embrace wash-houses, fuel stores, and dry earth closets. Each cottage is provided with a pump in the scullery, and the rain water is collected in an underground tank and is pumped up into the wash-houses for washing.

Adopting the author's description, the walls are built with local stock bricks, the strings and arches being of Berkhamstead red and moulded bricks, the projecting windows in the front gables are fir, and the gables over the same are covered with ornamental weather tiles. The roofs are covered with tiles, brought to the colour of old tiles by being dipped in a solution. All the external woodwork, except the porches, which are stained and varnished, is painted a dark rich brown colour, and all the internal joiners' work, except in the sculleries, is stained and varnished.

From the above description our readers will be able to form an opinion of the Swiss-like and picturesque appearance of these cottages. The gate-lodge erected at the New Cemetery, Epsom, by the Local Board, as a one-storey building, containing two bed-rooms, parlour, kitchen, scullery, and larder. The walls are of brick, the external wall being faced with Kentish rag stone, the dressings to the windows are of Bath stone. This gate-lodge is surmounted with a turret, the upper part of which is constructed of timber stained and varnished. This building too has a somewhat picturesque appearance. The entrance gates to the cemetery is undeniably artistic in design. Mr. Young says of them his intention "was to show the construction and framing, making them the ground-work of the design, so that the ornamental work of filling in, which is principally scroll work, is made to emphasize the constructional lines." We think he has fairly succeeded in giving a practical embodiment to his intention in these gates. We must add that the gates are executed entirely in wrought iron, all the leaves being worked by hand.

Plan and elevation of Parsonage House (Plate 12) erected at Teddington, Middlesex, with modified elevations. The design here given is now being erected at Norwood, as a suburban residence. In the present plan it is adopted as a vicarage, or it would be suited for a gentleman's house. In this design every modern requirement is to be found, but the cost including conservatory and covered way reaches £2,000. One of simpler construction, but preserving the picturesque features, could be erected at a cost of £1,300 complete with every appliance needed. The designs and general features of

this parsonage exterior are pleasing. The dormer windows and balcony over drawing-room windows is constructed of timber. All the strings and cornices are of moulded brick; the roofs are covered with plain tiles, the upper part of the windows are covered with lead lights in geometrical forms, and the lower parts to the height of seven feet are filled with plate glass in one sheet. There are basement, ground, and attic floors.

The pair of Semi-detached Houses (Plate 13) partake of an ecclesiastical character in their design. They are two storeys high, and are suited for the residence of clergymen. The designs in this instance were prepared for a member of the Church of England, at Peterboro'. We could safely recommend them for good examples of their kind for members of either church. There is a bit of domestic mediæval as well as slightly ecclesiastical character about their design, and if not purely original in conception, they are worthy of imitation. Mr. Young's study in this case is commendable.

Plans and Elevations of Cottage Hospitals (Plates 14, 15, 16 and 17) are on the whole good, and his observations thereon are excellent. To use his own words, "The principle on which these designs are based, is that the building should have all the simplicity in appearance both externally and internally of a good substantial cottage combined with all the advantages of the most approved methods of ventilation, drainage, &c., and all the appliances for facilitating the recovery of the patients which are to be found in the best hospitals."

If Mr. Young continues to design his cottage hospitals in the spirit of his remarks, and providing the sanitary facilities needed, his labours will effect a wholesome good, whether his designs in these instances are followed or not. In respect, however, to his own Cottage Hospital design here given, the plans are good, and care we think has been bestowed on all the arrangements. Externally the designs fully bear out the author's intention. There is grace and picturesqueness as well as simplicity to be observed in the elevations of them all. In Cottage Hospital (Plate 16) there is a homely gracefulness and antique cast of character in the design. Here truly there is a study from the dwellings of our forefathers. Plate 18: A Cottage Residence, or rather a gentleman's Country Residence. This is a really excellent and picturesque design, yet without homely and quiet, possessing sufficient architectural grace without pretentiousness, or laying on of needless ornamentations where not applicable.

We have no hesitation in saying that Mr. Young's designs are both artistic, picturesque, and creditable, and he may be congratulated in having succeeded so far in designing a varied class of buildings which will prove both ornamental and useful for the situations and the purposes for which they are designed.

Proposed Irrigation Scheme for Utilising the Sewage of Kingston-upon-Thames and Adjacent Districts, &c. Also, *Proposed Scheme for Utilising the Sewage of Richmond, and Combined Scheme for Richmond and Twickenham.* By Clement Dunscombe, M.A., Memb. Inst. C.E.I., &c., Borough Engineer. (Kingston: Knapp.)

As far as we have been able to examine the single or combined schemes of Mr. Clement Dunscombe, the able Borough Engineer of Kingston-on-Thames, they appear to us to be both practical and practicable and well considered. In his valuable and clear-headed report to the Special Drainage Committee of Kingston, he discusses the different methods now in course of adoption throughout the country for the utilisation of town sewage and its final distribution or disposal; the dry earth system and its limited application; the filtration and A B C processes; the marketable value of the manure obtainable from each; how far and to what extent are nuisances created or got rid of; and, finally,

what is the only system that can be adopted with a certainty as to the preservation of the health of the people and the prosperity of the country.

After discussing the chief objections and advantages of each system, Mr. Dunscombe falls back upon sewage irrigation as the only rational method that can be resorted to in a commercial or sanitary point of view. In these views we entirely agree with him, and we are firmly convinced that, before another five years, sewage irrigation will override every other method now in use. It is almost needless to say that sewage irrigation, wherever handled by practical men, has been both a commercial and sanitary success. In the production of crops it is the best possible fertilising agent; and wherever land can be procured without difficulty and within reasonable cost, ultimate success is sure to be the result of the adoption of sewage irrigation.

In respect to Mr. Dunscombe's first scheme for Kingston, he proposes to establish a pumping station at Kingston, on the ground belonging to the Corporation, known as the Ait; the reservoirs to be completely covered over; the sewage to be there collected from as many of the following towns as are desirous of being included:—East and West Malsey, Long Ditton, Thames Ditton, Surbiton, New Hampton, Hampton and Hampton Wick, situated on either side of the Thames. Mr. Dunscombe produces an alternative scheme, in which the irrigation area is principally within the Kingston parish. We think this small scheme for working Kingston and Surbiton, which are practically one, is also a most handy one. In conjunction with this limited scheme, the Borough Engineer would purpose also, if desired, to deal with New Malden, Old Malden, and a portion of Worcester Park, in the matter of irrigation. Mr. Dunscombe with both his schemes gives estimates of the costs. In both schemes there seems to be a capital outfall for the effluent water, in one case into the Mole, and in the other into Hogg's Mill river. The Board of Kingston are strongly recommended by their engineer to farm themselves; but if declining to undertake the responsibility, he feels certain that no difficulty would be experienced in leasing the sewage farm.

In the Richmond single scheme Mr. Dunscombe proposes to establish his pumping station in the vicinity of Richmond Wharf or Ranelagh Drive, Isleworth. The land he considers most favourable for the distribution of the sewage, which would be effected by means of open carriers and by surface irrigation on the pane and gutter system. The ground would be laid out transversely between the open carriers which distribute the sewage levels, the latter being conducted to the highest point of each field in a main carrier running in the direction of the least inclination. Distributing sub-drains would branch from these main carriers following the direction of the greatest inclination. Spaces intervening would be irrigated by placing stop boards in the sub-drains, causing the sewage to rise in them, and to flow uniformly over all the spaces.

In the combined scheme for Richmond and Twickenham, the locality of the pumping station would be in the vicinity of Eel Pie Island, into which the combined sewage would be made to gravitate. The Twickenham outfall would cross the Thames by means of a syphon, and the sewage of the small districts of Petersham and Ham would be intercepted, if desirable, by the Richmond outfall sewer.

The plans that accompany Mr. Dunscombe's reports are very plain and clear, and, we have little doubt, quite accurate. We think the Kingston Town Council acted very wisely in ordering the report concerning their township to be printed. These single and combined schemes relating to Richmond and Twickenham and Kingston-on-Thames and their adjacent districts, contain a vast amount of practical information and useful details which would be found most serviceable to many young borough engineers throughout Great Britain and Ireland. The Town Com-

missioners of Kingston have a clear-headed and practical man in their service, and we would strongly advise them to avail themselves of his advice and professional services in the matter of irrigation. Reduced rates, improved health, and abatement of nuisances will be the result, and "Another Blow for Life" will be emphatically struck for the advancement of science and the elevation of the human family.

En passant, we may remark, though in Ireland, we have sunny memories of Richmond, Twickenham and Kingston-on-Thames, and of many visits made to the haunts and shades of Pope and Thomson; but with an eye to the practical during some of our latest visits, it struck us that there was much valuable land in that quarter, and that there were abundant resources of an industrial nature out and about these districts that might be easily and productively developed if vested interests did not bar the way.

Ireland and the Imperial Parliament. By Jonathan Pim, M.P. Dublin: Hodges, Foster, and Co. London: W. Ridgway. THIS pamphlet, from the pen of one of our representatives, has already come in for a share of notice on the part of the London as well as the Irish Press. We will devote some attention to it in our next, as far as it comes within the scope of this journal. Independent of its political aspect, it is suggestive of questions of interest to every profession in Ireland.

The Garden. Conducted by Wm. Robinson author of "Alpine Flowers." London: Thomas Spanswick.

THE first number of this new candidate for public favor is to hand. It consists of thirty-two pages quarto, well printed on fine toned paper. The Garden in all its phases is treated on by various writers. We have amongst its contents, "Public Gardens;" "The Flower Garden;" "The Garden in the House;" "The Bog Garden;" "Nature's Gardens;" "Garden Design;" "The Fruit Garden," &c. We have also a paper, by Mr. Geo. Gordon, A.L.S., on "The Yellow Pine," and a page wood engraving taken from a photograph in the Yosemite Valley. The printing of the serial is executed by Messrs. Wyman and Sons.

From Messrs. Lockwood and Co. we have received "Intuitive Calculations," by Daniel O'Gorman. Twenty-third edition. We must hold over until next issue our notice of this useful manual.

THE HEALTH OF OPERATIVES IN FACTORIES AND WORKSHOPS.

AT the late Congress of the Social Science Association, held at Leeds, Mr. J. H. Stallard read a very practical and sensible paper on the above subject. He said that the question was precise, and narrows down to what took place in the workshop. The chief point was whether the air supply was pure; and he maintained that the death-rate and the kind of disease existing proved that the air in many cases was impure. A sufficient supply of air was capable of reducing the deaths resulting from pulmonary disease, and this fact he illustrated by a reference to improvements that have taken place in barracks to secure ventilation. Having contrasted the conditions under which the town artisan carries on his work with the conditions under which the agricultural labourer pursues his calling, he contended that man is made and constituted to live in the open air, and not in a box. People who were employed in towns were obliged to be fed more expensively than they would be if isolated in cottages in country districts. There was no doubt in the world we could produce a more healthy race by a less amount of expensive food than we could, by the very best food, produce in large aggregations in towns and large establishments. We should seek to

employ our people in the open air. The real stamina of the country, after all, came from the agricultural element, and that was due principally to the fact that those people worked wholly in the open air.

We wanted to establish the principle that factories and workshops should be so constructed as to assimilate the condition as near as possible to that of the open air, with provision only for protection against rain falling and violent draughts. To protect ourselves from draughts and rain was all that we really required. All ventilation proceeded under the supposition that only a certain amount of air was required, whereas the true air supply we needed was only to be obtained by living in the air. He exhibited a diagram of an improved method of ventilating hospitals, public buildings, and dwelling houses, and in speaking of it said that if we wanted to place our workshops in free contact with the open air, we should be compelled to adopt the principle of numerous small openings, and must rely upon the laws of diffusion and connection for a sufficient and complete interchange. That was, we must protect our apartments from the direct pressure of the wind, and yet provide a large surface with which the communication with the outer air should be free. Laws of diffusion and connection were sufficient to insure interchange even in the stillest atmosphere, if only we gave them sufficient opportunity for acting, and the problem was thus reduced to the question as to the largest surface of our room sides which might be perforated by innumerable small openings so placed as to be free from any outside pressure of the wind. Of course we could not perforate any of the sides, and we had only the top and the bottom. It would be expensive and difficult and useless to perforate the floor, and thus we were driven to the alternative of perforating the ceiling. If we protected this perforated ceiling from rain, and exposed it nowhere to the direct pressure of the wind, we had succeeded in placing the workroom in free, complete, and immediate contact with the outside air, and we should have given the principle of slow diffusion full play. No great volume of cold air could possibly be driven down on any side of the apartment, whilst the freest exit was provided for the warm and vitiated exhalations from the lungs and body and for any unwholesome products of the manufacture carried on. There was no disturbance in the atmosphere of the room sufficient to interfere with the natural rising of the vitiated products to the ceiling, and in the plan he had proposed there was nothing to prevent the escape of those products in the air chamber, from which they were at once carried away by the horizontal current passing through. The arrangement was simple. Every room should be provided with a double ceiling, the space between being in free communication with the outer air on all sides. The top ceiling was either the floor of the room above or the roof—the lower ceiling was made of finely perforated zinc, or oiled paper.

The air chamber should be large enough to admit of being swept out from time to time, and the sides might be made of perforated bricks of various colours and shapes. This plan did not interfere with the employment of opposite windows and ordinary means of warming rooms. The sole object was to maintain the principle of living in the open air, under all conditions, whether in winter or summer, day or night. It was beyond the control of any one to cut off the wholesome and necessary connection. It was a principle which, in his judgment, was as necessary in a bed-room as in a drawing-room, and as necessary in a factory as in an hospital. It was a principle which had been ignored by architects since the Roman era, but he would observe that the courts of the Pompeian house were but a more open arrangement than the one proposed. He believed that the best means of improving the health of operatives in factories and workshops would be to place them in direct communication with the open air by the plan proposed.

Mr. Rawlinson, C.E., approved generally of the suggestions of Dr. Stallard, and recommended them to the consideration of all persons having anything to do with men crowded in workshops or into houses. There was no artificial remedy, there was no fine-drawn remedy of flues or valves or other means of that class that would give fresh air in the abundance that appeared to be necessary for health. They were probably aware that he had been sent out by the Government to the army in the Crimea, and out in the Crimea there was certainly room for an experiment upon the grandest scale. The mortality was something more fearful than had ever occurred with any army with which he had been acquainted. Our troops in the Crimea had suffered in the three months during the dreadful winter of 1854-5 at the rate of 700 per 1,000—70 per cent. during those three months. They saw starvation of various kinds—from want of necessary provisions, and starvation from actual exposure to the elements.

The remedial measures that were taken in the first instance were to send out a number of huts from England, at very great cost, in lieu of tents; but these wooden houses had no sooner been inhabited than they became fever dens and pests of the very worst kind. And for this reason. No instructions were given to provide isolation of each hut from the subsoil and to provide ventilation. The side walls were 8 ft. high, and the roof was covered with patent felt, which was waterproof; but, unfortunately, it was airtight too, and there being no arrangement for any ventilation at the floor, and the huts being arranged for twenty-five men, one-half of the occupants were down in fever, and sometimes it turned to putrid fever. There were some regiments with only one-half of their strength. The 79th was down with fever, and a most striking condition of affairs was found out in comparing the position of the 79th with that of the 42nd Regiment. Lord Clyde had gone with him for the first inspection, and he asked to be told the difference between the two regiments, there being very little fever amongst the 42nd. Upon investigation he found that the encampment was on a steep mountain side, the greater part being oolitic limestone and dry, but there was a broad band of clay underneath. The 79th Regiment was on this band of clay, and the persons erecting the huts had excavated a level place into the bank of the hillside, and, consequently, at the back it was three to five feet in height, sloping down at the sides; and no provision being made to keep the earth from the sides of the huts, they were like inverted bell receivers, with the men inside, and the damp soaking in under the floor. The 42nd, on the other hand, were on the rock, and they had been compelled to raise a false floor for the huts. He advised the shifting of the regiment, and from the time that it was shifted the new type of disease ceased, and only the men had to recover who were originally down. The huts, however, on this band of clay were not taken down. The quarter-master forgot that they were empty. The 32nd Regiment came from India and was quartered in them, and when they had been there fourteen days, there were thirty-two cases of cholera. The wretched huts were still kept there, and a brigade of artillery having been sent into them, within thirteen or fourteen days there were thirty or forty dead with cholera. All this was simply want of ventilation and proper sanitary provision. As to day and night atmosphere, we in this country were not so much afraid of ventilation as the people on the Continent. On the Continent—in France, in Germany, in Italy—there was nothing people were so much afraid of as open windows; and the common remark if an open window was seen at night was, "There is some fool of an Englishman living in that house." He did think there was something of the bugbear in what was said of the difference of temperature between night and day. If we could keep patients out of a direct

draught, if we could keep them well clothed with the bed-clothes, no harm need be apprehended. As Miss Nightingale said, What could we have but night air? and how could we injure patients by night air? There was either the atmosphere around, or an artificial atmosphere of a most abominable character that was concocted by ourselves. We knew that travellers out in the east had a scorching sun, a tropical sun, on the sandy plains of Arabia, and the largest rivers were frozen over at midnight. Now, we had never heard that travellers there had suffered from the variation of temperature, and he himself had been in a country where, marching during the day, they had a temperature in the sun exceeding 120 degrees. He knew he had to march with his coat off, and was perspiring from every pore. He had no shelter at night but a thin piece of cotton, and yet he saw one inch thick of ice frozen on the river at night. He had always been considered a very delicate man, and although he did not say we could submit patients to a difference of temperature such as that, yet it only showed how wonderfully the human constitution would adapt itself to circumstances if we give it fresh air. Pure, uncontaminated air must be got in, and let in and out in profusion, or we could not have that health which was necessary.

Dr. Stallard, in reply to the foregoing observations, said that his system did not interfere with warming a room or building in the slightest degree. The proposal was the result of long deliberation, but it had only been matured within the last few weeks, and it had not been practically tested. He had the promise, however, that it should be fairly submitted to test. There was no danger whatever from the night air in any moderately well-placed building; provided, for instance, in hospitals the patient was covered up sufficiently. One medical man treated fever very successfully by taking the windows out of his building altogether, and if that was the case where the rain might beat in, what might not be expected from a system such as he had detailed?

CURIOUS ECCLESIASTICAL RECORDS.

A most interesting historical volume has been issued in London, edited by William Henry Overall, F.S.A. The book relates to the records of St. Michael's Church, Cornhill, and is entitled, "The Accounts of the Parish of St. Michael, Cornhill, in the City of London, from 1456 to 1608." It is accompanied with miscellaneous memoranda contained in "The Great Book of Accounts," with extracts from the proceedings of the vestry from 1563 to 1607. We quote a few paragraphs, as they will possess an interest for the members of the building branches as well as others. The prices of labour and materials furnish much food for thought, and the other items give us an insight into the ways, means, and usages in vogue in the fifteenth, sixteenth, and seventeenth centuries in connection with ecclesiastical buildings and affairs:—

The minutes of the Vestry commence the 16th of May, 1563, and continue to the present time. The Registers begin in the year 1546. The first book is divided into three parts:—1st, christenings; 2nd, marriages; 3rd, burials. This is written upon paper, and has been well preserved.

According to the order made by the Convocation of the Province of Canterbury on the 25th of October, 1597, a new parchment book was provided, by direction of the vestry. "The last of July was the parchment book made according to the order above named, and contained 240 leaves, and cost 45s." It is thus described in the title page:—"Julii die decimo nono Ao Dni, 1498. Anno Regni Elizabethæ Regina, xlm. The registre of all the christenings, marriages, and burials, wch have bene in this parish since the beginning of the Quenes Majestys reigne that now is, that is so far from the year of our Lorde God, 1558. Beinge collected and transcribed out of the former registre, wch have bene ill-favouredly kepte in this parish. Examined and proved with the old books the 29th of January, by William Asheboole, parson, and Robert Willcox, Thomas Wheler, John Sambrooke,

churchwardens." In the churchwarden's accounts there are several entries of payments made for writing the list of names in this book.

THE WARD RECORDS, which are kept with the parish archives, commence in the year 1571, 14th of Elizabeth. Besides the entries referring to the powers and duties of the officers of the ward, there are numerous curious entries showing the custom of the ward inquest, likewise a list of the Common Councilmen. In the earliest volume is an entry to the effect that, "There is bought by this inquest one new chest and this book, to serve from time to time at the wardnote inquest, to write in all matter as by them shall be determined."

The list of the armour belonging to the ward and kept in the steeple of the church, and which was used at the setting of the watch upon the vigils of the feasts of St. John the Baptist, 24 June, and St. Peter the Apostle, 29 June, is thus recorded:—Corselettes, x; morrespikes, x; swords, xxix; daggers, xxix; cotes, xix; sleeves of mail, xix pair; sculles, xij; guns, vi; great boxes of powder, vi; little boxes of powder, vi; matches, vi; bills, vi; bows, vi; sheafes of arrows, vi; girdles, xxix; points of arrows, xij dozen.

The ancient custom of chaining books in the parish churches is exemplified by several passages in the book of accounts. The earliest is in 1465, when a payment is recorded of 2s. and 2d. for two chains for 2 Psalter Books in the chapel of St. Catherine. There still remain in the church three of these books, with the chains attached to them.

PRINTED BOOKS.—1569. Item, paid for the new Bible, 27s. Item, paid for a register for the same Bible, xd. 1573. Item, paid for claspes and bosses for the great Bible, 16d. 1597. Item, paid for bosses and claspes for the Bible, 2s. In 1548—9, an order was passed ordering every parish church throughout the kingdom to provide a copy of the *Paraphrase upon the New Testament*, by Erasmus. In obedience to this order, we find by the following entry that the parish bought a copy;—Item, paid for a book called the *Paraphrase of Erasmus*, 5s. Item, paid for a chain to tie the *Paraphrase*, 20d. A copy of *Foxe's Book of Martyrs* was provided, and a chain, and lock, and 4 keys, to secure the same, costing 42s. 6d. Paid for Mr. Calvin's *Institutions*, 8s. 1559. Paid for lengthening of an iron chain to secure the glosed Psalter in our Lady Chapel, 2s. 1591. Paid for chains, and for a lock and nails for the books in the church, 16d. In 1607, in spite of the chain, *Foxe's Book of Martyrs* was stolen, for we find an entry of 9s. paid for prosecuting the thief in 1608.

The following are some of the entries here referred to in the *Great Book of Accounts*:—1475. Paid for 2 bars of iron with staples and nails to them, to stay our Lady and St. John in the rood loft, 3s. 5½d. Paid to a carpenter for making holes in the said two images, and for making them fast with the said two bars of iron, 8d. 1548. Item, paid to workmen for taking down Mary and John in the rood loft, 16d. Item, paid to a mason for cutting down the stones that the images stood upon in the church, 16d. 1555. Paid for the cross for the rood loft, 2s. Paid to a carpenter for setting him [the image of Christ] on, 2d.

1556. Paid to Peter, the joiner, for St. Michael, £3. Paid for a stone that St. Michael stands on, 4s. Paid unto A. Smith, the mason, for 4 days work and to set it up; and a labourer to help him, one day; and for 2 sacks of lime, 5s. Paid to Peter, the joiner, for making the rood, with the figures of Mary and John, £8 10s. Paid to a carpenter for the beam that the rood stands on, 17s. Paid for carriage of the beam from St. Giles, 10d. Paid for the hire of a jin to winch up the beam, 1s. Paid to a carpenter for his days work and his 2 men, 3s. "1559. Paid for taken down the image of St. Michael, &c., 2s. 4d. Received of Mr. Farrant for the great beam which bore the rood, 8s."

ALTARS.—1550. The 3rd year of the reign of Edward VI. Item, paid to the porters of the Weigh House, for taking down of the high altar stone, and for carrying it to the cloisters, 4s. Item, paid to 2 labourers for digging down the altar, 8d. Item, paid to the mason in Gracious-street, for taking down vi altars, 15s. Item, paid to him for a day and a half's work to pave where the altars stood, 1s. 1554. Upon the accession of Queen Mary they were restored. Item, paid to Alderman Sir Thomas White, for the high altar stone, 24s. Item, paid for making of the high altar, with brick and all the steps in the choir before the high altar, &c., 18s. 6d. Item, paid for bringing in and setting up the great altar stone, 6s. 8d. 1559. Received of Mr. Lute for the high altar stone, 22s. ALTAR-CLOTHS.—1554.—Paid to Richard Atkins, the carpenter, for making the frame of timber, and men's wages to set up the painted cloth before the high altar, 6s. 6d. Paid for painting of the cloth before the high altar, and for the cloth before

the altar, the colours of red and green in panes, £1 3s. 4d. VESTMENTS.—1473. Item, Paid to a vestment maker for mending of a vestment of popynjays, 8s. Item, Paid to a broderer for four days work, 2s. 8d. Item, paid to a vestment maker for thirteen days and a-half, at 8d. per day, 9s. 1474. Item, spent upon the vestment-makers at the making of the copes, 2d. Item, paid for halowing the new vestments, 2s.

1549. RECEIPTS FOR ORNAMENTS OF THE CHURCH THAT WERE SOLD.—Imprimis, 1 blue cope with ravens, £6 7s. Item, 1 cope of red cloth of gold at £7. Item, 1 little vestment of red velvet at 4s. 6d. Item, 1 red vestment with a deacon with black cross and stars, 12s. Item, sold to Mr. Stanfield, 1 tawny cope, 3s. 2d., and 3 copes of blue bawdikin, 31s. 6d., and one vestment of green bawdikin, 5s. 6d., 51s. 2d. Item, to Mr. Lute, 2 copes of green tissue and a white vestment, £8 13s. 5d. Item, to John Tatton, 2 copes of black velvet, 1 vestment of yellow saye, and 1 suit of vestment of black velvet, £4 17s. 2d. With many others, the whole sold for £69 6s. 1d. 1555. Paid for a suit of vestments, £8. 1562. Sold several vestments of purple velvet and satin, £4.

SACRAMENTAL PLATE.—In 1548, the plate belonging to the parish was sold, and the proceeds invested in the purchase of property for the parish. "Here follows the sums of plate that were sold to Thomas Mustran, goldsmith, for the purchase of ten chambers in the churchyard, which was sold the 17 day of August, 1548, by the churchwardens of St. Michael's in Cornhill, and by other of the masters of the parish whose names are ready to be showed. Item, one image of our Lady and an angel, all gilt, weighing 66 ounces. Item, a pix, gilt, weighing 60 ounces ½. Item, a basin and 4 cruets and the foot of a censer, parcel gilt, weighing 48 ounces. Item, a cross with Mary and John, gilt, weighing 110 ounces. Item, a little cross, gilt, weighing 20 ounces ½. Item, a chalice with the patron (St. Michael), gilt, weighing 38 ounces. Item, a box for oil, gilt, weighing 30 ounces. The sum received for the whole amounted to £80 5s. 3d. In 1559, purchased, by order of the vestry, a new Communion cup and cover, weighing 8 ounces, at a cost of 56s; and in 1569, item, paid for a cup of silver, wholly gilt, which was given to the Draper's Company, weighing 18 ounces, at a cost of £6 18s. Item, for making of a Michael upon the same cup, 10s.

CANDLESTICKS.—1555. Paid for 2 pewter candlesticks for the high altar 5s. 6d. 1557 Paid to Heath for a tin pair of candlesticks and a ship of tin at Christmas, 9s. 6d. Paid for three long candlesticks, 8d. Paid for a double candlestick, with a vice to set upon the pulpit where the great Bible lieth, 8d. 1585. Paid for one iron compass candlestick, for the pulpit, 2s. 1599. Item, paid for two wooden candlesticks and a nose, 3d. LANTERNS.—1551. Item, paid to the good man Howlin for a glass lantern, that hangeth in the body of the church, and for a cord to hang it with, 7s. 4d. Item, paid more for two new lanterns, the one to hang at the long alley and the other in the cloister, 20d. 1559. Paid for scouring and making clean of the great lantern for the church, 4d. Paid for scouring and making clean of the lantern horns, 2d. Paid for a rope, 30ty yards lngg, to hang the great lantern in the midst of the church, 1s.

THE FONT.—In 1466, the font was repaired, when the following payments are recorded:—Item, paid for timber and workmanship of the font lid, 2s. 2d. Item, for 2 pulleys and 2 ropes, for the same, 4d. Item, for 2 yards and a-half of green bokeram, for lining of the font, 16d. Item, for painting of the font lid, 2s. In 1467, there is a payment of 2d. for making clean of the bowls of our Lady of Pitte. This explains the custom of having bowls for holding holy-water at the foot of a Pieta (St. Mary bolding the dead Christ).

Among the miscellaneous entries occurs the following:—1457. Item, paid for 2 whips, 4d. Whether these were for driving the dogs out of the churchyard, or for whipping the idle vagabonds, does not appear. 1469. Item, paid for 3 rat-traps, 6d. 1598. The churchwardens received of Mr. Crooke, for his licence to eat flesh in Lent, 6s. 8d. 1574. It seems early to have been the custom in this church to have an iron frame for holding the Lord Mayor's sword; at this date 9s. was paid for gilding the case for holding the sword. In 1551, a proclamation was issued by Edward VI., reducing the value of the shilling to one-fourth and a few months later to one-half. Mr. Lute, the churchwarden, and the parish divided the loss between them. In 1580, the poultry kept by the parishioners became such an annoyance, that the vestry passed an order that all cocks, hens, and pigeons should be driven out of the churchyard.

The entries referring to the wages paid to artizans and the price of materials are numerous and interesting. In 1459, the wages per day for a skilled

workman was 8d., a labourer, 5d. 1541, workman, 10d.; labourer, 6d. 1551, workman, 1s.; labourer, 7d. 1559, workman, 1s. 2d.; labourer, 9d., and in 1574, workman, 1s. 4d.; labourer, 1s.

It were to be wished that the Corporation of Dublin would give to the public—assisted, of course, by the Government—a volume or two connected with the more important records of this city. There are many parish records in Dublin and throughout Ireland crumbling into dust, well worthy of seeing the light. There is scarcely a parish in this city and its environs that is not rich in historical lore. A good many of our records are not in this city nor in the country, but in foreign hands and in foreign libraries. Yet there is in Bermingham Tower, Dublin Castle, a valuable mass of records of a most important and interesting kind, and some effort ought to be made that even an epitome of them may be given to the public.

THE LATE DANIEL MACLISE, R.A.

THE lovers of fine Arts and our countryman, the late Daniel MacLise, will be glad to hear that a biography of this great artist is nearly ready for publication. It will be published under the following title; "Pictures of Daniel MacLise, R.A." The descriptions and memoir will be written by Mr. James Dafforne. The work will be illustrated with steel engravings. The publishers are Virtue and Co., London. Universally liked, with a private character irreproachable, and a genius high unapproachable, his name an honour to British art, and his works his fittest monument, MacLise will live in the remembrance of not only his countrymen, but of every intelligent citizen of the world who knows aught of art.

THE DRAMA—PRESS ABUSES AND STAGE ABUSES.

In our recent articles on Dramatic Criticism in the IRISH BUILDER we pretty clearly exposed the intolerable and existing abuses of the stage, which are encouraged to live by the lying and fulsome so-called dramatic criticism of the press. All our remarks are borne out to the letter by a very able and discriminating article in the *London, Provincial and Colonial Press News*. We extract the following truthful observations, and we trust our contemporary will follow up with another sledge-hammer blow:—

"We are of opinion that the abuses of the stage, like all other public eysores, might be cured, if not abolished, if the press felt earnest in the work of improvement. But we fear that this will never be the case while the free-order system, in addition to advertisement patronage, is in the way. These soothing-powders, together with the growing familiarity of parties, who, to be honest and sincere in their work, ought to be strangers to each other, will, we fear, ever prove a formidable barrier to wholesome castigating criticisms. The power of the press, in a good cause, is almost incalculable; and we therefore feel certain that if it was exerted to purify the stage from much of the absurdity, to say nothing worse, with which it is contaminated, that great good would be the result. The critics have only to deal with theatrical managers as the parliamentary reporters do with late speakers in the House of Commons, who get on their feet after midnight—treat them with silent contempt, and the result would be terrible. *Nothing is so hurtful to the feelings of theatrical people as silence.* Many an actor would rather be cut up than passed over, because they only live by popularity, and obscurity is looked upon as the dry-rot, or worse than transportation."

Our contemporary says in another part of its article:—"Theatrical managers generally care about as much for the true interests or moral tendencies of the drama as cab-drivers do for the comfort or longevity of the poor beasts they drive to death." We might add, they feel about as much love for the moral interests of the art as the coffin-maker feels regret for deaths that enable him to live.

The general run of the dramatic critics ought to be gibbeted for public scorn and contumely, though in many cases they are not entirely to blame. It is the incarnate greed of newspaper proprietors, and the putrid egotism of theatrical people—managers, actors and actresses—that keep alive the abuse.

By all means let the "free list" be entirely suspended—press and all included; let advertisements be paid for as advertisements, without the addition of paragraph puffs, and the fifth-rate mummings of the stage, and the pot-house critics of the press, will soon rot out of public sight.

The winter season has begun in Dublin and London of theatrical puff, cant, and hobnobbing between penny-a-liners and supernumeraries, to be followed by a general white-washing of the whole corps of the pantomimic idiocracy of the stage.

MISCELLANEOUS.

LONDON ALOFT.—The roofs of London are rising with portentous celerity. The two square bases which mark the period of extreme depression in the English architectural taste, when the light of heaven was taxed, and people seemed to fear that the air they breathed would be taxed next, are happily disappearing from our streets. In a few years they may be expected to become as rare as their gabled, timber-framed houses, with floor projecting on floor, of which a fine example still marks the site of Staple's-inn. With some features that seem to us inconvenient, or even unsightly, these ancient homes of the citizens combined many elements of comfort. In these up-piled storeys they contained accommodation for the lodging of household and visitors, of children and grand-children. The low, squat, two-storeyed huts, such as line part of Tottenham Court-road, appear, on the other hand, to combine the maximum of structural ugliness with the minimum of economy of area, and to be the most unfit and inconvenient form of dwelling ever yet introduced into a city—if, at least, that title be denied to a mere collection of wigwags. One name, amid that of the ten centuries of builders who have made London what she is, impresses itself on the mind of any observer of the lofty towers and of piled roofs that are yearly thickening in the landscape commanded from the hills of Highgate or Sydenham. One great master-builder foresaw that a great city, cramped in its area, might expand in its vertical structure. Let us raise our warehouses, our offices, our public buildings, to any readily conceivable height. Let us shoot up our men of business on steam lifts, and double the elevation of the halls and schools of South Kensington—St. Paul's will still soar above them all, and will the more proudly assert, the more closely modern builders climb after its lofty proportions, the genius of the man who was aptly termed in his epitaph the builder of this fane and of this city.—*Builder.*

CLAIMS TO A SURVEYORSHIP.—The local *Democrat* informs us that at a meeting of the Dundalk Town Commissioners on Monday week, the clerk read a letter from Mr. Bryan Roddy, stating that as a *native*, a *mason*, and a *bricklayer*, he applied for the office of Surveyor! The salary is £20 a year.

THE MONUMENT TO FLORA MACDONALD.—The *Inverness Courier* has much pleasure in announcing that the monument to Flora Macdonald is now safely placed over the grave of the heroine in the churchyard at Kilmuir, in the Island of Skye. The undertaking was an arduous one, but it has been successfully accomplished, and Highlanders have no longer cause to blush that the last resting-place of Flora Macdonald was unmarked by any suitable memorial. A monolith Iona cross, 18 feet 6 inches in height, placed upon a basement 10 feet high, has now been erected over the grave, and while it stands there the memory of Flora will be kept fresh in the mind of the people. The stone is from the quarry of Kennay, in Aberdeenshire, and is a remarkably pure specimen of the best kind of grey granite. As compared with other monumental crosses in Scotland, this is the largest of which we find any record. The celebrated Inverary cross is only 8 feet 6 inches in height; Maclean's cross at Iona 11 feet; that of Oronsay, Argyshire, 12 feet; St. Martins, 14 feet; Gosforth, in Cumberland, 14 feet 9 inches; and that of Ruthwell, Dumfriesshire, 16 feet. The monument to Flora Macdonald stands 28 feet 6 inches high, of which the principal stone, the cross itself, is, as we have said, 18 feet 6 inches in height. It occupies

a commanding position on a height about 300 feet immediately above the sea, at the extreme north-west of Skye, and will be a conspicuous object to every vessel passing up the Minch within sight of land. The difficult work of landing, transporting, and erecting the monument passed off without a hitch. The last stone was lowered in presence of Captain and Mrs. Fraser of Kilmuir, and about four hundred Skyemen, who stood unbanned around the grave, and when the ceremony was over gave three hearty cheers in honour of those who were concerned in accomplishing this long wished for object. The monument has been erected by public subscriptions.

THE KILDARE CATHEDRAL.—Mr. T. C. Trench, J.P., Millicent, Naas, has addressed a letter to the *London Guardian*, appealing to English readers for funds to carry out the restoration of the Cathedral of St. Brigid at Kildare. He says a purely agricultural diocese in Ireland is not a mine of wealth, and unless they can get assistance outside, several years' work must remain but half done.

NEW METAL POCKET VESTA BOX, WITH PATENT SPRING COVER.—Bryant and May have recently introduced a very useful little Pocket Vesta Box with a most ingenious and simple spring cover; it is a novelty in every way, and will soon come into very general use, being of metal instead of card, and retailed, filled with vestas, at one penny. Any Tobacconist, Grocer, Chemist, or Chandler will supply it.

REPORT OF DR. ARTHUR HILL HASSALL ON MAYAR'S SEMOLINA.—"I have carefully tested, chemically and microscopically, the samples of Semolina sent by Messrs. L. Mayar and Co., 36 Mark-lane, E.C. I find them to be perfectly genuine, of excellent quality, and eminently nutritious. They contain a very large percentage of nitrogenous matter, chiefly gluten, and are far more nutritious than any other food, such as Arrowroot, Tapioca, Sago, Corn Flour, Farinaceous Food, ordinary Wheat Flour, or any of the Cereals in use as food in this country." (Signed) "Arthur H. Hassall, M.D., London."

AMENA ET UTILIA.—A watch is an almost indispensable appendage, both to the gentleman, the artisan, and the laborer, and the same perfection of workmanship and accuracy in its movement is requisite for the one as the other; the only difference being in its outward appearance, to suit the avocation and position of the purchaser. Those manufactured by Mr. Benson of Old Bond-street, and Ludgate-hill, have gained great favour with the public on account of their strength and durability (such, in fact, as can only be found in a watch of English manufacture), their beauty and neatness of design, and the perfect finish which characterises every article produced by him, whether the price be five or two hundred guineas. Any one who has but once worn an English watch, would, we feel certain, abjure the use of a foreign one, as being inferior in every respect to the former. We would therefore recommend this article to the attention of merchants and shippers, as one well worthy of their attention, and certain to meet a ready sale in all foreign ports and British colonies.—*Standard*, October 4th.

TO CORRESPONDENTS.

CITIZEN.—It was in the year of 1689 the Lord Mayor of Dublin, Michael Creagh, absconded with the collar of S.S.; but William III. gave a donative collar to Bartholomew Van Homrigh, the Lord Mayor of the city, in lieu of the one lost or stolen. William's likeness was attached to the latter one. The Town Clerk could probably afford other details.

ROYAL INSTITUTION FOR THE ENCOURAGEMENT OF FINE ARTS.—In the year of 1813 this Society was established in College-green. The Royal Irish Academy was incorporated in 1786, and was instituted for the promotion of science, antiquities and polite literature.

VIEWS OF DUBLIN.—James Malton's work, published near the close of the last century, contains a series of most interesting views of the city, with large folding plans of Dublin in 1797. Beautifully engraved plates of the public buildings are given in the work.

IRRIGATION.—Sewage irrigation is quite modern in the British Islands, but irrigation by water flooding from rivers, or "warping" by sea-water, had been long practised.

BIBLIOTHECA HIBERNICA.—Those desiring a more general acquaintance with Irish archaeological, philological, and antiquarian matters, would do well to look over John O'Daly's catalogue of rare and curious books and pamphlets, illustrative of Irish history. Within the walls of No. 9 Anglesea-street, Dublin, there is a perfect mine of literary wealth; books and pamphlets as rare as hawthorn blossoms at Christmas, and they would prove as valuable to many authors and literary men as the restoration of sight to the blind. To English, Continental, and American historians, statesmen and authors, the possession of many of the books offered for sale in the catalogue of Mr. O'Daly would indeed be an invaluable one. An Irish library, or a thorough acquaintance with Irish history, is impossible, if it lacks copies of several of the rare works now on view at Mr. O'Daly's establishment.

BUILDING SOCIETIES.—Our article on this subject is held over for want of room.

THE GAS QUESTION.—The Gas Consumers' Company at Newry are playing similar tricks on the public to the Dublin Company. Perhaps they are trying how long the Newry people will "stand it." Newry has, however, the remedy in her own hands, if she has pluck to use it.

THE MUNICIPAL WARD ELECTIONS.—A few days before the elections took place, some of the candidates suddenly discovered how dirty the streets of Dublin were, and were loud in their condemnation. Some of the old foxes being now re-elected, will relax back into their primitive blindness. In a month hence we will be told, of course, that the Corporation of Dublin is the very pink of perfection.

W. G., Belfast.—We regret your valuable paper did not reach us in time for present issue; it will appear in next.

W. A. W., Belfast.—We have been expecting a communication from you.

T. O'N., Cork.—No announcement as yet of the case you mentioned in your last letter.

J. R., Sligo.—You can have all the numbers for current year sent by post. The subscription is payable in advance.

Nemo.—He has no connexion with this journal.

RECEIVED.—R.C.—J.H.—J.M. (next week)—R.R.B.—R.W.—H.C.—W.A.—Hon. Mrs. B.—R.M.—G.T.—T.B.—A.B.C.—F.N.—J.P.—A.M.A.

*—Several articles in type are crushed out for want of room.

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TOMB OF SIR THEOBALD BUTLER.
ROUND TOWER, ST. MICHAEL LE POOL.

NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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From WILLIAM TITE, Esq., M.P. for Bath, and Architect of the Royal Exchange, London.
House of Commons, 2nd March, 1864.

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From R. O. MINNIE, Esq., Surveyor to Board of Ordnance, London.
War Office, Pall Mall, London, S.W., 3rd March, 1864.

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The Irish Builder.

VOL. XIII.—No. 288.

Holly and Ivy: their Artistic and other Uses.



HOLLY and Ivy! What a crowd of familiar and hallowed memories roll back upon the mind when those words are uttered! The sounds carry us back to long ages ago, or, mayhap, to

the Maytime of youth, and fancies and forms come welling up of the half-forgotten past; of days untinged with the canker of care; of hours which the rime of adversity and the chilling frosts of disappointment never visited. These were the seasons of boyhood, the spring-time of young ambitions, the vernal

path of youth, full of sunshine and redolent of flowers, even though the fields and pathways by the river exhibited a vesture of snow.

'Twas the merry Christmas and the gifts that it held within its bosom which made the magic words of holly and ivy such homely sounds to the ear of youth. Leaving the fanciful pictures and the yearnings belonging to boyhood, we will bestow a few thoughts on other phases of the Holly and Ivy question.

The shrub known to us as the holly is one of our most beautiful evergreens, and it possesses peculiar beauties according to its cultivation, age, and the care that is bestowed upon it. It is common to most parts of Europe, and it is also found in North America, Cochin China, and Japan. In Great Britain and Ireland it is to be found extensively spread in natural woods and forests. In England and Scotland there are fine assemblages of the holly tree, in Medwood Forest and in the woods of Dumbartonshire. Culture has developed upwards of a hundred varieties, showing a difference in the size, colour, and form of the leaf. The more common, or hedge kind, makes a most compact and durable fence. When properly planted and attended to, it forms a hedge-row that provides shelter and durability. The only thing that militates against its being more generally resorted to for forming hedges is its slow growth—thorn hedges on this account, where rapid growth is needed, being preferable. In the seventeenth century holly hedges were very general, and at most of our gentlemen's mansions, flanking their entrance-gates and ranging along their shrubberies, holly shrubs in abundance were to be seen. There is something charming and artistic-looking in the very leaves of the holly. Its deep, shining leaves and rosy red berries in the depth of winter, breathe a look of comfort, and add, no doubt, to the charm of Christmas-tide.

The holly has, however, many artistic uses independent of its leaves and berries, and the purposes for which its branches are utilised for domestic and church decoration at Christmas and festival times. The wood of the holly, when seasoned, is very white and hard; and when sawn into thin leaves, it makes a valuable veneer for cabinet and workbox makers for inlaying purposes. It is also utilised of late, to a good extent, by wood-engravers, for its grain is quite close, and does not fly or break away under the graver's cutting tools. The inner bark of the holly makes an article which boys and bird-fanciers know and use pretty freely—namely, bird-lime. The leaf of the holly has its medicinal uses, being used for intermittent fevers; the berries also are used as purgatives and emetics. The holly in some places abroad is utilised for many purposes, a dye is extracted from it, and intoxicating drinks are distilled from it. A tea is even brewed from the holly twigs and leaves of the holly in South America. In its many varieties and growths in different nations special articles are produced from the treatment that its leaves, bark, or wood is subjected to when young. If the people of these islands could be led to cultivate it to a greater extent, many articles of commerce might be produced. Notwithstanding its slow growth, there are vast tracts of wood and wilderness, so to speak, where it might be trained to grow as an underwood sheltered by other trees of quicker growth, which are required for building and other domestic purposes.

We should begin to think in this utilitarian age how we can make things not only ornamental but useful in the service of mankind. An ornamental evergreen is pleasing, but holly, as a useful wood and as a shrub capable of yielding a variety of useful products, is a more pleasing production and possession still.

What can we say of the ivy? Although it is a destroyer under some conditions of its growth, it is also a friend and protector in the service of man. Out of place though it may be on the walls of a new or old public edifice in the city, yet who amongst us dislikes seeing it clasping an old, hoary ruin in its fond embrace? On suburban or country church, on the grey old castle walls, on the gable of the old village inn, on prison or workhouse, asylum, hospital, or almshouse, who among us are offended in seeing the ivy-green creeping up bravely, and clinging from basement to turret with a growing and undying attachment? The chattering sparrows build for generations in its shade, noisy and impudent as is their wont. The village choir, with their organ or harmonium, are accompanied or out heroded in their vespers or morning psalm; and even on the Sabbath a babel of bearable discord often rings out from the ivy retreat that flanks the church windows or overtops the entrance porch. The ivy is still untouched, though the sparrows may annoy. Why should the dear old parasite be pulled down? A hundred generations hence the subtle archæologist or grey-eyed peering antiquarian may move in the shadow of death around these ivy-clad ruins and though he may curse the vandalism of man he will doubtless bless the dear old ivy, that so tenaciously clung, preserving some precious tablet and date intact. Yes, reader, to historian, antiquarian, archæologist, architect, churchman, and layman, the ivy should be welcome. It may cover defects, yet it preserves many a thing that is beautiful; it is beautiful itself, and may it be a joy for ever.

The ivy, independent of its ornamental uses in connection with the holly, has hardly yet any developed artistic uses. Its stem or trunk but seldom assumes a proportion capable of being utilised as a wood; yet we can assert—possibly for the first time—that the stem of the ivy, where it grows large, may be cut and seasoned, and sawed into thin veneers for inlaying. We have suggested its use as an experiment, and have seen it used. It shows a white wood, not very hard, with but little discernible grain. It bore a good polish also when tried. The description we speak of was of very large proportions; it was stripped from a tree, and was possibly of a good age. Ivy in the last century was used more often for gardening purposes than now. Gardeners were in the habit of constructing a skeleton work of wire in the shape of birds and animals, and then training the ivy to grow about them. The berries of the ivy are black when fully ripened, which they are about the month of April. In hard winters, or when the snow has completely covered the ground, sheep and goats will eat the ivy leaves. Wood pigeons, blackbirds, thrushes, and other song birds will also eat the ivy berries in the spring. The ivy berries have some medicinal uses as well as those of the holly. Medicinally, the ivy is reputed to be diaphoretic; *i.e.*, having the power to produce perspiration, and the berries are emetic and purgative.

Having now stated the artistic and other uses of the immemorial holly and ivy, we are almost tempted to say a few words on its associations in connection with Christmas in domestic and Church decorations. The use of evergreens at festivals originated in Pagan times, but as a Christian custom it was worthy of imitation and adoption. The custom has been transmitted to us by hoar antiquity, and we will transmit it perhaps to our latest posterity. A few days hence its familiar cry will be heard in our public streets, and the olden Christmas carol will be sung; once more our manhood will feel the thrill of boyhood leaping through his veins, and forgetting the cares of the world for a while in the family reunion around the Christmas hearth, our memories will brighten up at sight of the inseparable and imperishable Holly and Ivy.

IRISH ART AND ARTISTS.

THE *Limerick Reporter*, in its issue of 5th December, devotes some remarks to the Tabernacle question, already the subject of comment in this journal. Now, we are unwilling that the controversy should be reopened; but when our contemporary does not quote verbatim our words, it should not misinterpret or give them another colour or meaning. Our commentary was not hostile, nor was it intended that it should be so. We did not use the words that our contemporary would put into our mouths, "that none but Irish artists should be employed in the decoration, &c., of Irish ecclesiastical buildings." Presuming that the work was ordered and executed in Italy, we said, "If there were no artists in Ireland capable of executing this work of art or handicraft, we would not object." We have witnessed of late years such a readiness nearly on all sides to send orders for everything, great and small, out of the country, that we considered it was but right and justifiable to raise some protest, particularly when it was in relation to matters that could be had as cheaply exe-

cuted at home, and where the material was equally beautiful. In Great Britain and Ireland everything of the nature spoken of can be procured. We have no desire to shut out foreign artists from a competition with either Irish or English ones; but at the same time we would like to see a more friendly reciprocity in the matter of art and manufactures in these British Islands. Although we represent Irish interests, and would like to serve them, we are neither selfish nor clannish in our attachments. We have a welcome for true genius and merit wherever it exists. As we object to Irish absentee landlords raising their money in Ireland and spending it on the Continent, living two-thirds of the year—often the whole of it—abroad, we also object to moneys raised by subscriptions from the people for public statues, testimonials, and church ornamentation to be sent thousands of miles away for works that could be obtained nearer home.

The *Limerick Reporter* has a right to express its opinion, and commend the action of the Archbishop of Cashel, if it so wills—and it does so by saying his Grace "has done well in bringing the tabernacle from Rome." It was not a question of politics or ultra-nationality with us: it was simply a question of giving encouragement to native talent. The Archbishop of Cashel is not the first dignitary of the church who has imported articles from Italy, and he was not singled out by us purposely. We could point to several members of the church in this metropolis and elsewhere who have, during these last twenty years, assisted in every way they could in sending orders out of this country for the most trivial as well as the most ambitious pieces of statuary. Goodness knows this country is well drained of money, and resident artists, painters, sculptors, and architects too, have sore reason to complain. Last, though not least, Irish artizans have often been passed over when services were required for the execution even of the most commonplace work.

Enough for the present. On another occasion we may possibly furnish a list of works of statuary and church decorations which were executed abroad during the last twenty-five or thirty years. The list, if complete, would be perfectly astounding to contemplate. Even in the famine years, when Irish resident artists and artizans were frozen up in perfect isolation from the rest of Europe, orders were leaving this country for Italy. It is next to a miracle how the School of Irish Sculpture has continued to exist, and nowise strange that our native sculptors, from Smith to Hogan, died of broken hearts.

HOME AND FOREIGN LITERATURE AND ART.

This winter's publishing season seems extraordinarily full and rife with everything from the new penny magazine to the guinea or two guinea volume. Art, science, law, theology, revelation, and unbelief, of each and all there are authors, disciples, and critics. Mr. Homersham Cox has published a work which possesses an interest for architects and perhaps lawyers—"The Law and Science of Ancient Lights." Numerous are the law suits concerning, and illimitable we fear will be until the whole bearing of the case is again gone over. Mr. Cox's book will be found serviceable, and a perusal of it by the many will go far in preventing litigation. Mr. Edward G. Bruton, architect, has published "A Handy Book on the Ecclesiastical Dilapidations Act of 1871." This book comes

from the publishing house of Rivingtons. Eyre and Spottiswoode, printers and publishers, have issued the second volume of the "Revised Edition of the Statutes"—a work that will be found most valuable. This volume brings us down to the year 1770. "Patent Law and Practice, showing the Mode of Obtaining and Opposing Grants, Disclaimers, Confirmations, and Extensions of Patents," with a chapter on patents, is a well-timed and handy volume, supplying a want which has long existed. This manual is issued by Trübner and Co.—a publishing house that has given heretofore several useful works to the public in the architectural and cognate interests. The house of Hodges, Foster, and Co., of this city, have issued a memoir of Chief Justice Lefroy, written by his son, Thomas Lefroy, M.A., Q.C. Another work appertaining in a measure to Ireland, though published in London, is "The Letters of Dr. J. Beete Jukes," well known through this city and Ireland as a clever geologist. The work is edited by his sister, and reveals a good deal of his career and correspondence with professional and scientific men on the subject of his favorite study. We have ourselves green memories of the labours and lectures of Beete Jukes in Ireland. Chapman and Hall are the publishers. The Clarendon Press have added a volume to their series by issuing a new volume by Mr. Earle on the "Philology of the English Tongue"—a volume that must prove attractive to many. "A Concise Manual of the Law Relating to Vendors and Purchasers of Real Property," written by Mr. Henry Seaborne, has been published by Butterworths, Fleet-street. This little volume will serve, no doubt, as a guide and key to the statutes and decisions bearing upon the subject. "A Survey of Political Economy," by Mr. John Macdonnel, from the publishing house of Edmonston and Douglas, Edinburgh and London, is a book that will lead to some criticism on the part of the disciples of Mill and Malthus. The book is accounted by several English organs as a talented production, and one displaying considerable lucidity of argument. Archbishop Manning's Discourses on "The Fourfold Sovereignty of God" is issued by Burns, Lambert, and Oates. It is outside the criticism of this journal. Longmans and Co. give us "A Classbook History of England," by David Morris, B.A., prepared for the use of students at Oxford and Cambridge as an aid to local examinations. Mr. Robert Mallet—a name well known in this country as well as in England—has prepared "Our Railway System Viewed in Reference to Invasion." It is a translation of Baron Von Weber's treatise on the training and adaptation of railways for war in time of peace. Mr. Mallet is peculiarly fitted to speak upon the subject: his well-known merits as a civil engineer are acknowledged. Mr. Mallet precedes the translation by a long introduction, in which he shows that England is unprepared to successfully resist a determined effort at invasion at the present moment. From the house of Michel Lévy Frères, Paris, comes "Ireland et France," a narrative by Alfred Duquet. The author accompanied the recent French deputation to this city; he pays a compliment to our politicians, or a section of them, by saying that the Irish were the only nation who still held true to their affection and sympathies for France, despite of the latter's misfortunes and reverses. This tribute will no doubt please the advocates of Home Rule. Griffin and Co. issue "One Thousand Domestic Hints," by the indefatigable Mr. John Timbs, whose several volumes of "waifs and strays" in various departments of literature have proved so pleasing and useful. Horace Cox, publisher of *The Field*, issues the second edition of "The Stable," a handy volume on the subject and its belongings, forming one of the series of "The Field Library." A book possessing an Irish interest—"A Plea for the Home Government of Ireland," by John G. MacCarthy, is another of Longmans' issues. Mr. MacCarthy is known as the author of "The Irish Land Question Plainly Stated

and Answered," published several months ago. Mr. Foster's "Life of Charles Dickens, the first volume of which was issued lately, continues to attract considerable attention, on account of the information and revelations it affords of his early poverty and struggles. It is having a rapid sale. Like the other works of Dickens, it is published by Chapman and Hall. The third volume of the "Memoirs of the Life and Times of Henry, Lord Brougham," written by himself, is just issued by Blackwood and Sons, Edinburgh and London. This volume completes the work. This is a most interesting work, and exhibits many strange phases of society, legislation, and character. "Experimental Mechanics" is the name of a volume of lectures delivered by our countryman, Robert Stawell Ball, A.M., at the Royal College of Science, Ireland. The volume is illustrated. Macmillan and Co. are the publishers. The Poetical Works of Samuel Lover are being re-issued by Messrs. Routledge. The volume will be welcome to many of our countrymen. Artist, musician, novelist, and poet, poor racy Samuel Lover possessed a truly versatile genius. We can forget some of his broad burlesques of the native character, in the light of his songs and their pathetic cadence or irresistible drollery. He sleeps in his "cold English grave," as Byron has said of other of our worthies, but he will be remembered in Ireland.

THE CLAIMS OF THE ASSISTANT SURVEYORS.

SOME decided action should be manifested at once in the matter alluded to in the letter of "Assistant Surveyor." If the Council formed still exist, they are certainly called upon to act, either apart or in conjunction with others who are willing to aid in giving motion, vigour, and tone to their protest. Grievances can only be remedied by united action, and the Assistant Surveyors have just cause of complaint. We will be only too happy to afford the members of that body any honest assistance we can, in the pages of the IRISH BUILDER, now or at any future time.

MESSRS. YOUNG & CO.'S NEW PREMISES, DONEGALL-PLACE, BELFAST.

IN no locality within the northern capital are architectural improvements more markedly observable than in Donegall-place. To the already fine business premises in this grand thoroughfare there has been added the newly-erected and attractive concerns of Messrs. Young and Co., Nos. 24 and 26, and which we illustrate in present number. It is built on the site of the old Nelson Club, latterly occupied by Mr. Frederick Ogle on the shop and ground floor, and on the first storey by Messrs. Thomas Jackson and Son, architects. The frontage of the new building is 35 feet by 60 feet in height, divided into four storeys. The portion rebuilt is about 80 feet in depth, where it is connected on the several floors with the wholesale warehouse of the long-established firm of Messrs. Day and Bottomley, extending back to Calender-street, a distance of some 250 feet. The entire of the new front elevation is of cut stone and plate-glass, the design being a modification of the Venetian style. The shop front presents a very spacious recessed pair of mahogany folding-doors, with panels of plate-glass, set in between a pair of columns of Newry granite with carved capitals; the shop window at either side being of a magnificent plate of glass, containing 100 superficial feet in one piece, set in mahogany frame, and separated from adjoining properties by granite pilasters in unison with the columns, from which massive arches in cut stone spring, forming with

the aid of spandrels a substantial base to receive the superincumbent work. The front of the first and second ware-room floors is divided into five segmental arched windows, and on each the arches spring from detached columns of pink granite, finely polished. The front of upper storey is divided into seven windows, with semi-circular arched heads springing from cut stone columns and pilasters. The top storey is finished with cut stone parapet, terminated by large carved urns. The shop-fittings are very handsome and complete. The spaces between the top of wall fixture and the lofty ceiling have been divided by pilasters painted in imitation of marble, with carved and gilt capitals. The panels so formed between them have been arranged to receive each an ornamental carved and bronze bracket, on which has been placed a life-sized bust of some celebrated personage. Amongst the number, there are one of the Queen, one of the Prince Consort, one of the Duke of Wellington, with his contemporary in arms, the First Napoleon, one of Sir Walter Scott, one of Lord Byron, &c. Light has been admitted from the roof through a large oval open in the respective floors, surrounded by ornamental metal and mahogany enclosures. The two upper ware-room floors are occupied in connexion with the wholesale department. The designs for the building and fittings were furnished by Messrs. Thomas Jackson and Son, and the works carried on under their direction by Messrs. J. & J. Guiler, builders, of Great Victoria-street. The painting and decorations have been executed by Mr. George Coulter, and the gas-fittings and chandeliers by Mr. Stewart, Victoria-street.

SEWERAGE EFFLUVIA.*

WE feel convinced we will be ridiculed in asking the question, Is our modern sewerage arrangements an improvement upon the antiquated closet and ash-pit system? No doubt the removal of ashes and soil amounted to an intolerable evil of periodical though of short duration, but in these days there existed no provision to any extent for the removal of surplus water except cesspools, which have ever proved fruitful sources for generating poisonous gases; but if proper appliances, such as our main and arterial system of drainage now exists, then existed, and that the ash-pit was confined to its proper use—the receptacle only for dry ashes and soil—and that it should be situated at sufficient distance from the dwelling-house, it is probable that a far less amount of deleterious gas would be generated than exists at present. It is to be remembered that coal ash is a positive deodoriser, and by a very easy process all soil emanating from dwelling-houses can be discharged into the ash-pit, so as to be at once deodorised; this is effected by placing the aperture for discharging ashes in such position as that it must immediately cover the soil, and therefore may be called self-acting. However, as we have no wish to return to the obsolete practice of our ancestors, and as this is only applicable to private dwelling-houses, and cannot be resorted to in large establishments where numbers are congregated, we must apply ourselves to a removal of the cause which permits sewage gases to permeate within the precincts of the dwelling-place of man. As existing at present, drain pipes carried through houses, and in connexion with a main system of arterial drainage, are but so many conductors for carrying noxious effluvia, and particularly through the soil-pipes of water closets, the waste pipes of house-mains, slop-troughs, and wash-hand basins to the innermost recesses of the house, as, no matter how carefully those are trapped, every time they are severally put into requisition an escape of gas to a greater or lesser extent must take place, and this is further promoted by trapping drains in streets and roadways, rendering them pent-up reservoirs, and which

under existing circumstances may possibly be designated as a mistake, because all external apertures for the escape of foul air being prevented, and the drain within the house being in a warmer atmosphere, they naturally conduct the foul air to escape at its highest level. Trapping external drains without other precautions, therefore, appears to us to be rather an injury than the reverse, because if a number of openings exist in the open air the noxious gases escape where they can be best guarded against, and do not accumulate in private drains to ascend into dwelling-houses as before mentioned; but it is a matter of necessity that all drains, external as well as internal, should be trapped, and this can only be done with safety by establishing a thorough system of ventilation for them; many projects for this purpose exist in theory. Tall chimneys with furnaces to burn off the vitiated air have been proposed, also pipes in connexion with street lamps, only to be supplied with air from the sewers; but opinions vary very much upon the subject in consequence of the inflammable nature of the gases produced, and the necessity which would arise in order to neutralise them for leaving all street gullies open to supply air, which it is supposed would then have a current setting into them instead of, as at present, when untrapped, escaping from them. Rain-water pipes from roofs of houses have been made to communicate with drains; in many instances they are effective to some extent, but they occasionally produce a greater evil than they are intended to remedy by conveying noxious effluvia in close proximity with adjacent window openings. In all new buildings an easy and inexpensive remedy suggests itself, which would be to have ventilating flues built as part of the chimney-stacks or otherwise, and carried to the highest point of the building, these flues to be placed in air-tight connexion with the house drain at its highest level. When two houses would be building together one would amply suffice for both, but as this is inapplicable to existing buildings, and as in order to be really effective they should be general, we propose it should be compulsory to have a cast-iron pipe of moderate bore and stanch at the joints communicating with every main soil-pipe and carried to the highest level of all buildings; where this is impracticable it could be connected with the house-drain at its summit level. We have been led into those remarks by reading the following in a recent issue of the *Manchester Examiner and Times* :—

“Imperfect house drainage is at the bottom of more than half the disease from which our town populations suffer, and when we are told that the system of drainage most generally in use is radically defective, it is quite time we began to retrace our steps. Two letters have appeared within the last day or two, one from Mr. Baldwin Latham, President of the Society of Engineers, and the other from Mr. Robert Rawlinson, the eminent Government Sanitary Engineer, which are in accord on this subject. The value of Mr. Latham's testimony will be perceived from the following extract :—“In ninety cases out of every hundred in which I have had cause to examine the drains of premises in which typhoid has occurred, I have found them (as in the case of Lord Lonsborough's house) free from deposit, and also connected with sewers free from deposit, and the traps in all cases were perfect. From ordinary observation it would have been concluded that these drains and sewers were in perfect order, but a more careful examination, and an inquiry into the forces which are brought into play in every system of sewerage, soon showed that the absence of ventilation was the sole cause of the disease, and that the traps are not to be depended upon unless protected by a ventilator. A simple experiment will suffice to show the most ignorant the little dependence which must be placed upon traps. Take an ordinary Florence flask and insert in the cork a tube of glass bent into the shape of a syphon trap 2in. deep; fill the trap with water, and then place the hands upon the flask, and in the course of a few seconds the air within the flask will become so dilated by the heat of the hand as to force every drop of water out of the trap. House drains at times are placed in exactly the same condition as the Florence flask, either the sewers into which they discharge are running at a level about

the mouth of the house drain or the drains or sewers may be locked by the rising tide. In either case the effect of the admittance of a single puff of hot water will be to cause such a dilation of the sewer air as will force any ordinary trap. Moreover, if ventilation is not provided, as every drop of water passed into a sewer displaces an equal volume of sewer gas, the gas, if a safe exit is not provided for it, will escape at points out of control and where least expected.”

Persons who hold firmly to the belief that an ounce of fact is better than a ton of theory are referred to the case of Croydon; where about five years ago an outbreak of typhoid fever occurred, “which affected all the highest and best parts of the district, leaving the low-lying district unaffected.” Mr. Latham observes :

“No defect could be detected in the works of sewerage or house drainage, and after some consideration I found the fever solely due to the want of ventilation, and to test the matter I took one road, which was three miles in length (the London Road), and instead of commencing the ventilation at the upper end of the sewer, the work was commenced at the lower end, and we worked upwards, and it was a significant fact that so soon as the work was commenced not a single case of fever occurred below a ventilator, and all the cases began to recover rapidly, while in the same road, above the district not ventilated, the fever was still on the increase.”

The local authorities were so struck by this practical illustration that they at once took steps to provide a perfect system of drain ventilation, and with the happiest results. We need not refer at any length to Mr. Rawlinson's letter, because it says very much the same thing. “There is no trap in existence,” he emphatically remarks, which under the conditions usually found existing in houses, “can prevent the entrance of foul gases regularly (unceasingly) to the internal atmosphere. The only effect of traps is to concentrate, and so render more injurious, the sewer and cesspool gases. “Let it be clearly understood,” he continues, “that traps on drains and pipes from unventilated sewers, cesspools, and house drains are “a delusion and a snare.” The importance of these statements can hardly be over-estimated, especially when, as Mr. Rawlinson remarks, he finds the system of ventilation he recommends “objected to by members of Town Councils, by Local Boards of Health, and generally neglected by others.” All householders are urged to have their drains flushed once a week, because “a clean-looking drain is no proof that it may not be injurious.” At the same time, if they are wise they will not neglect to provide that “full, permanent, external ventilation” the advantage and enjoyment of which cannot fail to be experienced by themselves and their families.”

In reference to Mr. Latham's arguments with regard to sewers free from deposit, which shews that care has been exercised in flushing them, it is well known that whenever drains are thoroughly flushed the volume of water required for the purpose produces a rush of air which in the absence of ventilation drives through the traps and other points beyond control the gases which have accumulated in the drain, and although we cannot agree in its fullest extent with the theory of the Florence flask as applicable to sewers, we have often had occasion to remark during the prevalence of strong winds setting up the Liffey, that sink traps become utterly useless in preventing the escape of noxious gases into our houses, therefore the necessity for providing sufficient outlets for their discharge, and this after all can never be thoroughly effective unless main sewers are supplied with ventilating appliances as well as private drains.

It is doubtless considerable difficulties exist with regard to the ventilation of sewers. At page 226, Report General Board of Health, we find “that the trapping of main sewers favors decomposition,” and in continuation this report shews that gases are evolved thereby in such quantities that they force their way through every description of trap, and further on states that sewers can only be partially ventilated by the erection of chimney shafts with furnaces, as has been tried at Paris and at Antwerp, and in addition that the vapours arising from these shafts being heavier than atmospheric air, again descend in foggy weather, but as such experiments have only been tried upon a partial scale, we are of opinion a more general system of diffusing these gases would most likely be productive of different results.

* Contributed by William Hughes, Esq.

CHRISTMAS CIVIC AND TRADE CUSTOMS IN OLD DUBLIN.

CHRISTMAS comes, and brings with it its many old and hallowed recollections. It comes with its immemorial hopes and blessings to buoyant boyhood; but it comes, nevertheless, shorn of many, very many, of its ancient accompaniments, pastimes, customs, and usages. Yet Christmas is welcome, and we fear that when it ceases to be looked to in Ireland as a time that brings with it comfort and joy in more senses than one, then, indeed, despair and despondency must have taken deep root in the national heart.

Christmastide three centuries ago in Ireland, and particularly in the capital, was symbolised by many observances of both an ecclesiastical and municipal character. The drama was brought into requisition in the acting of miracle plays, termed otherwise, the "mysteries and moralities." Sacred plays, so to speak, were enacted in special churches, and these solemn celebrations were preceded in the forenoon by a civic pageant or procession from the Guild Hall to the chapel. There is a record preserved of one of these old Dublin observances in a MS. of Robert Ware. This record states—

"Thomas Fitzgerald, Earl of Kildare and Lord Lieutenant of Ireland, in the year of 1528, was invited to a new play every day in Christmas, Arland Usher being the mayor, and Francis Habert and John Squire bailiffs, wherein the taylors acted the part of Adam and Eve, the shoemakers represented the story of Crispin and Crispianus, the vintners acted Bacchus and his story, the carpenters that of Joseph and Mary. Vulcan, and what related to him, was acted by the smiths, and the comedy of Ceres, the goddess of corn, by the bakers. Their stage was erected on Hoggin-green [College-green, or part of it], and on it the Priors of St. John of Jerusalem, of the Blessed Trinity, and of All Hallows, caused two plays to be acted, the one representing the passion of our Saviour, and the other the several deaths which the apostles suffered."

Here we see was the exact passion play in Ireland upwards of three centuries ago—a passion play similar to that which still exists at Ober Ammergau, in Bavaria, and which has been almost written to death by the special correspondents of the English press. These miracle plays existed in Ireland and in England some centuries anterior to this time; at least they can be traced in England, in one form or another, back to the twelfth or thirteenth century. Although the Lord Lieutenant was invited to these passion or Christmas plays, they were not got up specially for his amusement. They were also celebrated at other times, such as at Easter or Corpus Christi time. It was customary for long years for many of the Dublin Corporations to invite the chief governor to a play or special amusement at St. George's Chapel, situated in South Great George's-street. There is a MS. in the Library of Trinity College which affords the following interesting particulars anent these old Dublin customs:—

"That in an expedition against James Mac Connel by the Lord Deputy Sussex, in 1557, he was attended by John Usher, captain, and Patrick Bulkely, petty captain, with sixty of the City trained bands, and upon the return THE SIX WORTHIES was played by the city, and the mayor gave the public a goodly entertainment upon the occasion, found four trumpeters' horses for the solemnity, and gave them twenty shillings in money."

This is a somewhat interesting record, and it gives us an insight into the spirit that existed within the English pale.

These old Christmas or other festival pastimes were not wholly of an ecclesiastical character. It would seem, from the majority of the records we have met with, that the corporate authorities and the minor guilds and trade bodies of the city played no unimportant part in them. The clergy attended to the observances within the churches, and took care that they should not lack due lustre; but we find also that the Corporation supplied performers, also dresses, scenery and machinery, such as were then requisite. In fact, the city and the citizens supplied the plant and sinews of war. In the "Chain

Book" of Dublin, an old record relating to corporate acts and usages, we come across the following items:—

"Item 1st—It was ordered in maintenance of the Pageant of St. George that the Mayor of the foregoing year should find the Emperor and Empress, with their train and followers well apparelled and accoutred, that is to say with two doctors, and the Empress with two knights, and two maidens richly apparelled to bear up the train of her gown.

Item 2nd—The mayor for the time being was to find St. George a horse, and the wardens to pay 3s. 4d. for his wages that day, the bailiffs for the time being were to find four horses with men mounted upon them well apparelled, to bear the pole-axe, the standard, and the several swords of the Emperor and St. George.

Item 3rd—The elder master of the guild was to find a maiden well attired to lead the dragon, and the clerk of the markets was to find a golden lion for the dragon.

Item 4th—The elder warden was to find for St. George four trumpeters, but St. George himself was to pay their wages.

Item 5th—The younger warden was obliged to find the King of Dele and the Queen of Dele as also two knights to lead the Queen of Dele, and two maidens to hear the train of her gown, all being entirely clad in black apparel. Moreover, he was to cause St. George's Chapel to be well hung in black, and completely apparelled to every purpose, and was to provide it with cushions, rushes, and other necessities for the festivity of the day."

All these rules were pretty explicit, and though we may smile now at the state of feeling and society they reveal, yet it would be well for the credit of the city and the dignity of her corporate bodies if municipal matters now-a-days, duties and observances, were so accurately and punctually performed.

Our old guilds and minor corporations are abolished, the manufactures they fostered, the trades they kept intact by their spirit of brotherhood, are isolated and separated; there is little unity of thought or fixity of purpose for the common weal in these days; self is predominant, and personal aggrandizement is become the sole end and aim of life. We would not reverse the present order of society, yet we would say, give us back the homely, human spirit and neighbourly assistance of thought and act that reigned within the walled cities and towns where our ancestors lived and traded. Give us back the essence of good breeding and manliness that formerly went to the making of the sturdy old citizen whose word was his bond, and whose honour was of equal value to his life.

The old trade guilds of Dublin had much in common with those of London, and they celebrated festival days either in conjunction with members of the Corporation, or the church, and in honour of their own patron (trade) saints.

The record in the "Chain Book" mentions the names of several of the trades, the patron saints belonging, and the mysteries they represented.

On Corpus Christi day the trades walked in procession also. Although we could furnish a longer list of trade representations than the one we give, we prefer furnishing it as it appears in the "Chain Book."

"The glovers were to represent Adam and Eve with an angel bearing a sword before them.

The corsees (curriers it is supposed) were to represent Cain and Abel, with an altar, and their offering.

The mariners and vintners, Noah and the persons in his ark, apparelled in the habits of carpenters and salmon-takers.

The weavers personated Abraham and Isaac, with their offering and altar.

The smiths represented Pharaoh with his host.

The skimmers, the camel with the children of Israel.

The goldsmiths were to find the King of Cullen.

The hoopers were to find the shepherds, with an angel singing Gloria in excelsis Deo.

Corpus Christi guild was to find Christ in his passion, with the Marys and angels.

The taylors were to find Pilate with his fellow-ship, and his wife clothed accordingly.

The bakers, Annas and Caiphas.

The fishers, the apostles.

The merchants, the prophets.

And the butchers, the tormentors."

These old civic customs, for which Dublin was at one time the scene, were, perhaps,

more Anglo-Irish than peculiarly Irish, though there is every reason for believing that the "mysteries and moralities" were performed even anterior to the Invasion.

St. George and the Dragon, of which frequent mention is made, is of English origin. The guilds or minor corporations of the city of London have records somewhat similar to what we have produced above.

The St. George's Chapel mentioned was attached to a monastery. Richard Stanyhurst, the historian, who was a native of Dublin, born in 1545 and living until 1618, writes anent this chapel:—"This chapel hath been of late razed, and the stones thereof, by consent of the assemblie, turned to a common oven, converting the ancient monument of a doutie, adventurous, and holy knight, to the colerake sweeping of a puf-loafe baker." Stanyhurst thus supposes it to have been founded by some illustrious knight.

John Bale, an English divine, who was appointed to the bishopric of Ossory in 1552, wrote several pieces which came under the term of miracle plays, and these were enacted in Ireland at Christmas and at other religious festivals. Bale was originally a Carmelite monk, but afterwards became a fierce opponent to Catholic observances. It was said that his life was threatened while in Ireland, which forced him to retire to the Continent. Two of Bale's religious plays, called "God's Promises" and "John the Baptist," appear to have been acted on a certain Sunday in Kilkenny, in the year 1552. This is mentioned in Vallancy's "Collect. de Rebus," vol. ii. Recently, if we remember aright, this fact has also been proved by the publication of some of the town records of Kilkenny. In Bale's time it would seem that the comic muse took great freedom with religion, making sport of the Holy Word. In the reign of Elizabeth there was an act passed to reform abuses in this direction, in which "it is ordeyned and enacted that if any person or persons whatsoever after the feast of St. John the Baptist, shall in any interlude, playes, songs, rimes, or by other open word declare or speak of any thing in derogation, depraving, or despising the same booke or of any thing therein conteyned, or any part thereof, shall forfeit to the queene our soveraigne lady her heyres and successors, for the first offence an hundred marks; and if any person or persons being once convict of any such offence offofome offered against any of the said recited offences, and shall in forme aforesaid be thereof lawfully convict, shall for the second offence forfeit to the queene our soveraigne lady, her heyres and successors, four hundred marks; and if any person after he in forme aforesaid shall have been twice convict of any offence concerning any of the last recited offences shall offend the third time, and be thereof in forme lawfully convict, that then every person so offending and convict, shall for his third offence forfeit to our soveraigne lady the queene, all his goods and chattels, and shall suffer imprisonment during his life." It is not exactly clear against what particular class of persons this act was directed. Joseph Cooper Walker, who wrote a historical memoir of the Irish bards, thinks that it was probably that class of persons noticed by Spencer, whose duties consisted in singing at feasts and meetings the productions of the Irish bards. Possibly so, for the influence and customs of the Irish bards were looked upon with a jealous eye during the reign of Elizabeth and subsequently.

In the reign of Charles I. other acts were passed for the erection of houses of correction for the punishment of rogues and vagabonds, lewd and idle persons, fencers, bear-wardens, common players of interludes, and minstrels wandering about. This act was without doubt intended to not only hunt down the poor strolling players, but the ancient tribe of wandering minstrels common to England as well as to Ireland. They continued to exist, however, despite of these acts. Though the Parliament enacted laws, the Court connived at the representation of plays moral and profane.

In 1635 a theatre was erected in Werburgh-street, Dublin, where all the roving players of the kingdom were invited who possessed any distinguished merit. Many congregated here who were obliged previously to wander about the country from one gentleman's mansion to another. The booth was forsaken for a while by some, and a regular representation of the drama, on a small scale, began in Dublin. The Earl of Strafford appointed one John Ogilby master of revels in Dublin. This master of revels was a Scotchman, and was originally a dancing-master to the family of Strafford. The theatre in Werburgh-street was erected under the direction and at the expense of Ogilby. Harris, the historian, says this theatre cost two thousand pounds in its erection. Werburgh-street theatre continued open until the breaking out of the Irish Rebellion. It closed then and for ever. This theatre had the sanction of the Irish Executive until 1641. The next change of the Dublin drama was to Smock-alley, previous to that known as Orange-street, the now site of SS. Michael and John's Chapel. This was in 1661, but the civil wars that succeeded had the effect of dispersing all the actors and shutting up the theatre. After the defeat of King James at the Boyne it was intended to celebrate the event at Smock-alley Theatre, but no actor could be found to assist. Colly Cibber relates in his "Apology" that some persons were willing to subscribe for a performance at their own expense at this theatre, but they failed for the reason stated.

The last play enacted at the Smock-alley Theatre was called "Landgartha," a tragic-comedy. Walker states it was the composition of an Irishman of the name of Herburnel, who flourished about the close of the reign of Charles I.

As we are not intending at present to write a history of the Irish stage, we will draw remarks to a close. The history of the stage is full of vicissitudes, and of splendid triumphs. It is associated with joys and our defeats, our civic pageants, festivities, so it was impossible for us to touch upon one without mentioning some of the other. The times have changed, we have our Christmases; yet they come with many a bright recollection of the past. We cannot roll back the sunny clouds of two hundred years, but we can all read and think, and still remember with degree of interest and pride the customs of our citizen-forefathers in this old Dublin.

DUBLIN

ESTIMATES OF COTTAGES ERECTED ON ESTATE OF HIS GRACE THE DUKE OF LEINSTER

In response to requests from several of the country, to furnish some detail of cost of erecting the farm-houses, single cottages, &c., plans of which have already appeared, we now give some estimates. Returning to plans No. 1 and 2, the following specification is given for the matter of foundations, masonry, bricks, woodwork, painting, &c. Indeed this specification holds generally applicable to all the houses and cottages:—

The trenches to be excavated till a good sound foundation is obtained in all parts. The bottom of trenches to be drained when practicable by a field drain, carried from the lowest part of the foundation to still lower ground; and the bottom of trenches to be formed so as to drain off moisture to such outlet.

Floor levels to be kept at least 6in over outer surface of ground.

All stones to be set on their natural beds, and thorough bond stones to be used to every 10ft superficial at least, and otherwise the stones to be well bonded, and the walls not built up in two thicknesses. Discharging arches over all openings, springing from outside of lintels. No course of masonry to exceed 14in high. The joints to be raked out, on completion, 1 1/2in deep, and pointed with lime, sand, and forge dust.

External walls, whether or not otherwise specified or figured on drawings, to be 2 1/2in thick; where shown or figured as 9in thick, they are to be brick.

Rough hammer-dressed or rough punched stone quoins to walls of building.

Flues to be 10in clear diameter, and formed with fireclay flue linings, or with a wooden mould about 2ft long for each flue, carried up with the work. All sharp angles to be avoided, and no timber placed within 9in of any flue. Flues to kitchen fireplace to be at least 12in diameter, or 14 1/2in x 10in. Flues to finish on top with a fireclay flue-lining standing 6in over top of chimney-shaft, to answer as cap.

Door sills not less than 6in thick or 12in in width.

Door blocks 9in high, well bedded in wall where described. To be the best stock bricks. No place or unburnt bricks to be used or to be allowed on the premises.

The jambs of external openings of doors and windows to be built with bricks, in 9in and 14in blocks, properly tailed into masonry.

Window sills to project 3in and 4in on each side longer than openings; throated underneath, weathered on top.

In bedding hearthstones, in boarded rooms, care to be taken to have two courses of slates bedded in mortar under stones, so as to prevent accidents from joints or broken stones. Those in kitchens to be bedded on benches of masonry or broken stones.

All lintels, joists, trimmers, and external door and window frames to be of memel or red pine, free from defects. The roofing and flooring and internal joiner's work to be of the best St. John's deals. Rafter, joists, and studs not to exceed 12in apart. Trimmer joist 4in thicker than others.

Lintels to be 3in thick to 3ft openings, and 1in thicker for every extra foot in length, and to have at least 6in on wall at each end; to be the width of walls except where external arches occur.

Shutters to be provided to all ground-floor windows, unless otherwise described in plans; and where not otherwise described in drawings, the kitchen shutters to be clamped or framed bead and butt.

None but the best white lead and best linseed oil to be used. All the work to be knotted. All wood and iron work to be painted four coats; the priming to be a light red colour, and no lead-coloured priming to be used.

Subjoined are the quantities and details of farm dwelling-house No. 1:—

Quantities and Details	Rate
	£ s. d.
28 1/2 yds cube excavation for foundations, &c.	.. at 0 0 4
27 " rubble masonry in foundations	.. at 0 6 0
97 " " in superstructure, including raking out and pointing joints	.. at 0 7 0
8 1/2 " workmanship only in opens	.. at 0 2 0
24 " brickwork of all heights and thicknesses	.. at 0 18 0
28 yds super. cement concrete laid over foundation	.. at 0 1 0
.. to walls, headers	.. at 0 2 4

HALF-PENNY
STAMP.

POST CARD
THE ADDRESS TO BE WRITTEN ON THIS SIDE

19 1/2 ft super. boarding	.. at 0 0 4
24 yds super. dashed, floated, and coated plastering	.. at 0 0 4
162 " lath and plaster to ceilings and partitions	.. at 0 1 0
Painting woodwork in 4 coats, plain colour	.. 4 5 0
Total	.. £216 9s 1d

The prices in Dublin, at canal or railway, for the following materials may be thus stated:—Slates, £12 15s 11d; laths, 16s 6d; ridge tiles, 18s 8d; timber for roof, £5 11s 5d; tassels, joists and flooring, £4 1s 10d; trimmers, joists and flooring, £10 18s 9d; studs, heads, sills and ties, £1 4s 7d; skirting, 13s 11d; 3 doors and frames, £1 13s 3d; hall-door, frame, fan sash and trimmings, £3 9s; 6 doors, hanging stiles and stops, £4 7s; sashes and frames glazed, £8 14s 7d; shutters, backfolds, jamb-linings, soffits, window-boards, &c., £4 12s.

It would be advisable to have eave spouts round the house, as it not only adds dryness and comfort, but secures the rain-fall for domestic purposes.

The detailed estimate for contract for small farm-house (Plan 2) is as follows:—

Quantities and Details.	Rate.
	£ s. d.
26 yds cube excavation for foundation, &c.	.. at 0 0 4
19 " rubble masonry in foundations	.. at 0 6 0
49 " " in superstructure, including raking out and pointing joints	.. at 0 7 0
9 " workmanship only in opens	.. at 0 2 0
13 " brickwork of all heights and thicknesses	.. at 0 18 0
27 yds super. cement concrete laid over foundation walls	.. at 0 1 0
48 " Portland cement concrete floors, with concrete skirting	.. at 0 2 0
15 1/2 ft lineal rebated and throated window sills	.. at 0 1 8
32 " punched and drafted angle quoins (vertical heights)	.. at 0 1 0
17 1/2 " door sills	.. at 0 1 3
58 " forming flues	.. at 0 0 4
68 1/2 " stock brick eave courses	.. at 0 0 3
4 Flue linings to top of chimneys for caps	.. at 0 1 0
4 Punched and drafted stone door blocks	.. at 0 1 9
8 2-5 squares duchess slating on sawn laths, 3 1/2 in lap, and rendered	.. at 2 0 0
35 ft lineal fire-clay ridge tiles, set in mortar, and pointed with cement	.. at 0 0 4 1/2
26 " slating on cement filletting	.. at 0 0 4
5 9-10 squares roofing, rafters 4 1/2 x 2, collars 4 1/2 x 1 1/2, and wall plates 5 x 3	.. at 1 2 8
4 Wrought-iron tie bars, 2 x 1/2, with bolts, nuts, and washers	.. at 0 5 6
11 cubic feet inside lintels	.. at 1 9 3
6 Ledge doors, 11n rebated, with frames, hinges, latches, locks, &c., averaged	.. at 1 0 0
3 1/2 ft super 2in deal casement lights, hung and glazed, solid frames, 4 1/2 x 3	.. at 3 17 6
34 1/2 " 1in plain shutters, clamped at ends, and hung, &c.	.. at 0 0 6
19 " 4in plain soffits to windows	.. at 0 0 6
20 " 1 1/2 in window boards	.. at 0 0 6
1 Wrought-iron kitchen grate, with top falling bar, hearthstone, &c.	.. at 1 10 0
1 " bar, 3 x 1/2, under arch of fireplace	.. at 0 5 0
3 " grates, with hobs, hearthstone, &c.	.. at 0 12 6
198 yds super dashed, floated, and coated wall plastering	.. at 0 0 7
Painting woodwork in 4 coats, plain colour	.. 2 5 0
Total	.. £98 15s 4d

Dublin, at canal or railway:—

1d; laths, 14s 4d; timber for ; 6 doors and 6 frames, £3 11s and frames glazed, £3; shutters, adow-boards, £1 14s 2d.

lan, double cottage, and No. 4, tages, we here give the estimate:—

Quantities and Details	Rate
	£ s. d.
excavation for foundations, &c.	.. at 0 0 4
ole masonry in foundations	.. at 0 6 0
" " in superstructure, including raking out and pointing joints	.. at 0 7 0
orkmanship only in opens	.. at 0 2 0
ckwork of all heights and thicknesses	.. at 0 18 0
ment concrete laid over foundation	.. at 0 1 0
ick and stud partitions above and below	.. at 0 3 6
ortland cement concrete floors, in porches, and lower rooms, with skirting	.. at 0 2 0
ebated and throated window sills	.. at 0 1 8
punched and drafted angle quoins	.. at 0 1 0
l heights)	.. at 0 1 3
door sills	.. at 0 0 4
forming flues	.. at 0 0 4
ick eave courses	.. at 0 0 3
ags to top of chimneys for caps	.. at 0 1 0
d and drafted stone door blocks, and rendered	.. at 0 1 9
duchess slating on sawn laths, 3 1/2 in lap	.. at 2 0 0
al freclay ridge-tiles, set in mortar, and pointed with cement	.. at 0 0 4 1/2
slating on cement filletting	.. at 0 0 4
es roofing—rafters 4 1/2 x 2, collars 4 1/2 x 1 1/2, wall plates 5 x 3	.. at 1 2 8
ght-iron tie-bars, 2 x 1/2, with bolts, nuts, and washers	.. at 0 6 0
squares flooring joists, 9 x 1 1/2, framed into mangers, and flooring 9 x 1, tongued and grooved	.. at 2 12 0
ought-iron corbels under trimmers of floors, and fixing	.. at 0 1 0
lineal skirting, nailed to floors, 2 x 2,arris off	.. at 0 12 6
6 cubic feet inside lintels	.. at 0 1 9
102 1/2 ft super. plain soffits to lower windows, and clamped shutters, with hinges, fastenings, &c.	.. at 0 0 6
48 " 1 1/2 window boards	.. at 0 0 6
10 Ledge doors, 11n rebated, with frames, hinges, thumb-latches, locks, &c., on an average	.. at 1 0 0
2 Ledge front doors, 11n frames, hinges, and fan-lights	.. at 1 10 0
104 super. 2in deal casement lights, hung and glazed, solid frames, 4 1/2 x 3	.. at 0 1 8
2 Stairs 1 1/2 in treads, 1 1/2 in risers, complete	.. at 3 5 0
2 Squares super. 1 1/2 in boarded partitions at top of stairs, planed, tongued, and grooved, with heads, sills, and studs at angles	.. at 1 5 6
2 Wrought-iron kitchen grates, with hearthstones, &c.	.. at 1 10 0
2 " grates in bedrooms, with hearthstones, &c.	.. at 0 12 6
2 " bars 3 x 1/2, under arches of kitchen fire-places, and fixing	.. at 0 5 0
272 yds super. dashed, floated, and coated wall plastering	.. at 0 0 7
58 1/2 yds ceiling of bedrooms	.. at 0 1 0
Painting woodwork in 4 coats, plain colour	.. 3 15 0
Total	.. £191 0s 6d

* See plans in IRISH BUILDER of 1st and 15th November and 1st December.

CHRISTMAS CIVIC AND TRADE CUSTOMS IN OLD DUBLIN.

CHRISTMAS comes, and brings with it its many olden and hallowed recollections. It comes with its immemorial hopes and blessings to buoyant boyhood; but it comes, nevertheless, shorn of many, very many, of its ancient accompaniments, pastimes, customs, and usages. Yet Christmas is welcome, and we fear that when it ceases to be looked to in Ireland as a time that brings with it comfort and joy in more senses than one, then, indeed, despair and despondency must have taken deep root in the national heart.

Christmastide three centuries ago in Ireland, and particularly in the capital, was symbolised by many observances of both an ecclesiastical and municipal character. The drama was brought into requisition in the acting of miracle plays, termed otherwise, the "mysteries and moralities." Sacred plays, so to speak, were enacted in special churches, and these solemn celebrations were preceded in the forenoon by a civic pageant or procession from the Guild Hall to the chapel. There is a record preserved of one of these old Dublin observances in a MS. of Robert Ware. This record states—

"Thomas Fitzgerald, Earl of Kildare and Lord Lieutenant of Ireland, in the year of 1528, was invited to a new play every day in Christmas, Arland Usher being the mayor, and Francis Hubert and John Squire bailiffs, wherein the taylors acted the part of Adam and Eve, the shoemakers represented the story of Crispin and Crispianus, the vintners acted Bachus and his story, the carpenters that of Joseph and Mary. Vulcan, and what acted him, was acted by the smith Ceres, the goddess of corn, a stage was erected on Hoggins or part of it], and on it the Jerusalem, of the Blessed Hallows, caused two plays to presenting the passion of our S the several deaths which the a

Here we see was the e. in Ireland upwards of thr a passion play similar to exists at Ober Ammergau which has been almost w the special correspondents press. These miracle play land and in England some t to this time; at least they England, in one form or an twelfth or thirteenth cen the Lord Lieutenant was passion or Christmas plays got up specially for his am were also celebrated at othe at Easter or Corpus Christ customary for long years f Dublin Corporations to i governor to a play or specia St. George's Chapel, situated George's-street. There is Library of Trinity College w following interesting particul old Dublin customs:—

"That in an expedition against J by the Lord Deputy Sussex, in 1557 by John Usher, captain, and Patrick captain, with sixty of the City tr upon the return THE SIX WORT by the city, and the mayor gave the entertainment upon the occasion, found four trumpeters' horses for the solemnity, and gave them twenty shillings in money."

This is a somewhat interesting record, and it gives us an insight into the spirit that existed within the English pale.

These old Christmas or other festival pastimes were not wholly of an ecclesiastical character. It would seem, from the majority of the records we have met with, that the corporate authorities and the minor guilds and trade bodies of the city played no unimportant part in them. The clergy attended to the observances within the churches, and took care that they should not lack due lustre; but we find also that the Corporation supplied performers, also dresses, scenery and machinery, such as were then requisite. In fact, the city and the citizens supplied the plant and sinews of war. In the "Chain

Book" of Dublin, an old record relating to corporate acts and usages, we come across the following items:—

"Item 1st—It was ordered in maintenance of the Pageant of St. George that the Mayor of the foregoing year should find the Emperor and Empress, with their train and followers well apparelled and accoutred, that is to say with two doctors, and the Empress with two knights, and two maidens richly apparelled to bear up the train of her gown.

Item 2nd—The mayor for the time being was to find St. George a horse, and the wardens to pay 3s. 4d. for his wages that day, the bailiffs for the time being were to find four horses with men mounted upon them well apparelled, to bear the pole-axe, the standard, and the several swords of the Emperor and St. George.

Item 3rd—The elder master of the guild was to find a maiden well attired to lead the dragon, and the clerk of the markets was to find a golden lion for the dragon.

Item 4th—The elder warden was to find for St. George four trumpeters, but St. George himself was to pay their wages.

Item 5th—The younger warden was obliged to find the King of Dele and the Queen of Dele as also two knights to lead the Queen of Dele, and two maidens to bear the train of her gown, all being entirely clad in black apparel. Moreover, he was to cause St. George's Chapel to be well hung in black, and completely apparelled to every purpose, and was to provide it with cushions, rushes, and other necessities for the festivity of the day."

All these rules were pretty explicit, and though we may smile now at the state of feeling and society they reveal, yet it would be well for the credit of the city and the dignity of her corporate bodies if municipal

more Anglo-Irish than peculiarly Irish, though there is every reason for believing that the "mysteries and moralities" were performed even anterior to the Invasion.

St. George and the Dragon, of which frequent mention is made, is of English origin. The guilds or minor corporations of the city of London have records somewhat similar to what we have produced above.

The St. George's Chapel mentioned was attached to a monastery. Richard Stanyhurst, the historian, who was a native of Dublin, born in 1545 and living until 1618, writes anent this chapel:—"This chapel hath been of late razed, and the stones thereof, by consent of the assemblee, turned to a common oven, converting the ancient monument of a doutie, adventurous, and holy knight, to the colerake sweeping of a puff-loafe baker." Stanyhurst thus supposes it to have been founded by some illustrious knight.

John Bale, an English divine, who was appointed to the bishopric of Ossory in 1552, wrote several pieces which came under the term of miracle plays, and these were enacted in Ireland at Christmas and at other religious festivals. Bale was originally a Carmelite monk, but afterwards became a fierce opponent to Catholic observances. It was said that his life was threatened while in Ireland, which forced him to retire to the Continent. Two of Bale's religious plays, called "God's Promises" and "John the Baptist," appear to have been acted on a certain Sunday in Kilkenny, in the year 1552. This is mentioned in Vallancy's "Collect. de Rebus," vol. ii. Recently, if we remember aright, this fact has also been proved by the publication of some of the town records of Kilkenny. In Bale's time it would seem that the comic muse took great freedom with religion, making sport of the Holy Word. In the reign of Elizabeth there was an act passed to reform abuses in this direction, in which "it is ordeyned and enacted that if any person or persons whatsoever after the feast of St. John the Baptist, shall in any interlude, playes, songs, rimes, or by other open word declare or speak of any thing in derogation, depraving, or despising the same booke or of any thing therein conteyned, or any part thereof, shall forfeit to the queene our soveraigne lady her heyres and successors, for the first offence an hundred marks; and if any person or persons being once convict of any such offence offofome offered against any of the said recited offences, and shall in forme aforesaid be thereof lawfully convict, shall for the second offence forfeit to the queene our soveraigne lady, her heyres and successors, four hundred marks; and if any person after he in forme aforesaid shall have been twice convict of any offence concerning any of the last recited offences shall fend the third time, and be thereof in forme wfully convict, that then every person so fending and convict, shall for his third ence forfeit to our soveraigne lady the eene, all his goods and chattels, and all suffer imprisonment during his life." is not exactly clear against what particular class of persons this act was directed.

Joseph Cooper Walker, who wrote a historical memoir of the Irish bards, thinks that it was probably that class of persons noticed by Spencer, whose duties consisted in singing at feasts and meetings the productions of the Irish bards. Possibly so, for the influence and customs of the Irish bards were looked upon with a jealous eye during the reign of Elizabeth and subsequently.

In the reign of Charles I. other acts were passed for the erection of houses of correction for the punishment of rogues and vagabonds, lewd and idle persons, fenceers, bear-wardens, common players of interludes, and minstrels wandering about. This act was without doubt intended to not only hunt down the poor strolling players, but the ancient tribe of wandering minstrels common to England as well as to Ireland. They continued to exist, however, despite of these acts. Though the Parliament enacted laws, the Court connived at the representation of plays moral and profane.

represent Cain and Abel, with an altar, and their offering.

The mariners and vintners, Noah and the persons in his ark, apparelled in the habits of carpenters and salmon-takers.

The weavers personated Abraham and Isaac, with their offering and altar.

The smiths represented Pharaoh with his host.

The skimmers, the camel with the children of Israel.

The goldsmiths were to find the King of Cullen.

The hoopers were to find the shepherds, with an angel singing Gloria in excelsis Deo.

Corpus Christi guild was to find Christ in his passion, with the Marys and angels.

The taylors were to find Pilate with his fellow-ship, and his wife clothed accordingly.

The bakers, Annas and Caiaphas.

The fishers, the apostles.

The merchants, the prophets.

And the butchers, the tormentors."

These old civic customs, for which Dublin was at one time the scene, were, perhaps,

In 1635 a theatre was erected in Werburgh-street, Dublin, where all the roving players of the kingdom were invited who possessed any distinguished merit. Many congregated here who were obliged previously to wander about the country from one gentleman's mansion to another. The booth was forsaken for a while by some, and a regular representation of the drama, on a small scale, began in Dublin. The Earl of Strafford appointed one John Ogilby master of revels in Dublin. This master of revels was a Scotchman, and was originally a dancing-master to the family of Strafford. The theatre in Werburgh-street was erected under the direction and at the expense of Ogilby. Harris, the historian, says this theatre cost two thousand pounds in its erection. Werburgh-street theatre continued open until the breaking out of the Irish Rebellion. It closed then and for ever. This theatre had the sanction of the Irish Executive until 1641. The next change of the Dublin drama was to Smock-alley, previous to that known as Orange-street, the now site of SS. Michael and John's Chapel. This was in 1661, but the civil wars that succeeded had the effect of dispersing all the actors and shutting up the theatre. After the defeat of King James at the Boyne it was intended to celebrate the event at Smock-alley Theatre, but no actor could be found to assist. Colly Cibber relates in his "Apology" that some persons were willing to subscribe for a performance at their own expense at this theatre, but they failed for the reason stated.

The last play enacted at the Smock-alley Theatre was called "Landgartha," a tragic-comedy. Walker states it was the composition of an Irishman of the name of Henry Burnel, who flourished about the close of the reign of Charles I.

As we are not intending at present to write a history of the Irish stage, we will draw our remarks to a close. The history of the Irish stage is full of vicissitudes, and of short-lived triumphs. It is associated with our joys and our defeats, our civic pageants and festivities, so it was impossible for us to touch upon one without mentioning something of the other. The times have changed, and so have our Christmas; yet they come to us with many a bright recollection of the past. We cannot roll back the sunny clouds of one or two hundred years, but we can all of us read and think, and still remember with some degree of interest and pride the customs of our citizen-forefathers in this old City of Dublin.

DUBLINIENSIS.

ESTIMATES OF COTTAGES ERECTED ON THE ESTATE OF HIS GRACE THE DUKE OF LEINSTER.*

In response to requests from several parts of the country, to furnish some details as to the cost of erecting the farm-houses, double and single cottages, &c., plans of which have already appeared, we now give some detailed estimates. Returning to plans Nos. 1 and 2, farm dwelling-house and small farm-house, the following specification is applicable in the matter of foundations, masonry, flues, bricks, woodwork, painting, &c. Indeed this specification holds generally applicable to all the houses and cottages:—

The trenches to be excavated till a good sound foundation is obtained in all parts. The bottom of trenches to be drained when practicable by a field drain, carried from the lowest part of the foundation to still lower ground; and the bottom of trenches to be formed so as to drain off moisture to such outlet.

Floor levels to be kept at least 6in over outer surface of ground.

All stones to be set on their natural beds, and thorough bond stones to be used to every 10ft superficial at least, and otherwise the stones to be well bonded, and the walls not built up in two thicknesses. Discharging arches over all openings, springing from outside of lintels. No course of masonry to exceed 14in high. The joints to be raked out, on completion, 1½in deep, and pointed with lime, sand, and foreign dust.

External walls, whether or not otherwise specified or figured on drawings, to be 21in thick; where shown or figured as 9in thick, they are to be brick.

Rough hammer-dressed or rough punched stone quoins to walls of building.

Flues to be 10in clear diameter, and formed with fireclay flue linings, or with a wooden mould about 2ft long for each flue, carried up with the work. All sharp angles to be avoided, and no timber placed within 9in of any flue. Flues to kitchen fireplace to be at least 12in diameter, or 14½ x 10in. Flues to finish on top with a fireclay flue-lining standing 6in over top of chimney-shaft, to answer as cap.

Door sills not less than 6in thick or 12in in width.

Door blocks 9in high, well bedded in wall where described. To be the best stock bricks. No place or unburnt bricks to be used or to be allowed on the premises.

The jambs of external openings of doors and windows to be built with bricks, in 9in and 14in blocks, properly tailed into masonry.

Window sills to project 3in and 4in on each side longer than openings; throated underneath, weathered on top.

In bedding hearthstones, in boarded rooms, care to be taken to have two courses of slates bedded in mortar under stones, so as to prevent accidents from joints or broken stones. Those in kitchens to be bedded on benches of masonry or broken stones.

All lintels, joists, trimmers, and external door and window frames to be of memel or red pine, free from defects. The roofing and flooring and internal joiner's work to be of the best St. John's deals. Rafter, joists, and studs not to exceed 12in apart. Trimmer joist ½in thicker than others.

Lintels to be 3in thick to 3ft openings, and 1in thicker for every extra foot in length, and to have at least 6in on wall at each end; to be the width of walls except where external arches occur.

Shutters to be provided to all ground-floor windows, unless otherwise described in plans; and where not otherwise described in drawings, the kitchen shutters to be clamped or framed bead and butt.

None but the best white lead and best linseed oil to be used. All the work to be knotted. All wood and iron work to be painted four coats; the priming to be a light red colour, and no lead-coloured priming to be used.

Subjoined are the quantities and details of farm dwelling-house No. 1:—

Quantities and Details	Rate £ s. d.
28½ yds cube excavation for foundations, &c.	.. at 0 0 4
27 " rubble masonry in foundations	.. at 0 6 0
49 " " in superstructure, including raking out and pointing joints	.. at 0 7 0
9 " workmanship only in opens	.. at 0 2 0
13 " brickwork of all heights and thicknesses	.. at 0 18 0
27 yds super cement concrete laid over foundation walls	.. at 0 1 0
48 " Portland cement concrete floors, with concrete skirting	.. at 0 2 0
15½ ft lineal rebated and throated window sills	.. at 0 1 8
32 " punched and drafted angle quoins (vertical heights)	.. at 0 1 0
17½ " door sills	.. at 0 1 3
58 " forming flues	.. at 0 0 4
68½ " stock brick eave courses	.. at 0 0 3
4 Flue linings to top of chimneys for caps	.. at 0 1 0
4 Punched and drafted stone door blocks	.. at 0 1 9
8 2-5 squares duchess slating on sawn laths, 3½in lap, and rendered	.. at 2 0 0
35 ft lineal fire-clay ridge tiles, set in mortar, and pointed with cement	.. at 0 0 4½
26 " slating on cement filletting	.. at 0 0 4
5 9-10 squares roofing, rafters 4½ x 2, collars 4½ x 1½, and wall plates 5 x 3	.. at 1 2 8
4 Wrought-iron tie bars, 2 x ½, with bolts, nuts, and washers	.. at 0 5 6
11 cubic feet inside lintels	.. at 1 9 3
6 Ledge doors, 1in rebated, with frames, hinges, latches, locks, &c., averaged	.. at 1 0 0
3½ ft super 2in deal casement lights, hung and glazed, solid frames, 4½ x 3	.. at 3 17 6
34½ " 1in plain shutters, clamped at ends, and hung, &c.	.. at 0 0 6
19 " 4in plain soffits to windows	.. at 0 0 6
20 " 1½in window boards	.. at 0 0 6
1 Wrought-iron kitchen grate, with top falling bar, hearthstone, &c.	.. at 1 10 0
3 " bar, 3 x ½, under arch of fireplace	.. at 0 5 0
1 " grates, with hobs, hearthstone, &c.	.. at 0 12 6
198 yds super dashed, floated, and coated wall plastering	.. at 0 0 7
Painting woodwork in 4 coats, plain colour	.. 2 5 0
Total	£93 15 4

It would be advisable to have eave spouts round the house, as it not only adds dryness and comfort, but secures the rain-fall for domestic purposes.

The detailed estimate for contract for small farm-house (Plan 2) is as follows:—

Quantities and Details	Rate £ s. d.
26 yds cube excavation for foundation, &c.	.. at 0 0 4
19 " rubble masonry in foundations	.. at 0 6 0
49 " " in superstructure, including raking out and pointing joints	.. at 0 7 0
9 " workmanship only in opens	.. at 0 2 0
13 " brickwork of all heights and thicknesses	.. at 0 18 0
27 yds super cement concrete laid over foundation walls	.. at 0 1 0
48 " Portland cement concrete floors, with concrete skirting	.. at 0 2 0
15½ ft lineal rebated and throated window sills	.. at 0 1 8
32 " punched and drafted angle quoins (vertical heights)	.. at 0 1 0
17½ " door sills	.. at 0 1 3
58 " forming flues	.. at 0 0 4
68½ " stock brick eave courses	.. at 0 0 3
4 Flue linings to top of chimneys for caps	.. at 0 1 0
4 Punched and drafted stone door blocks	.. at 0 1 9
8 2-5 squares duchess slating on sawn laths, 3½in lap, and rendered	.. at 2 0 0
35 ft lineal fire-clay ridge tiles, set in mortar, and pointed with cement	.. at 0 0 4½
26 " slating on cement filletting	.. at 0 0 4
5 9-10 squares roofing, rafters 4½ x 2, collars 4½ x 1½, and wall plates 5 x 3	.. at 1 2 8
4 Wrought-iron tie bars, 2 x ½, with bolts, nuts, and washers	.. at 0 5 6
11 cubic feet inside lintels	.. at 1 9 3
6 Ledge doors, 1in rebated, with frames, hinges, latches, locks, &c., averaged	.. at 1 0 0
3½ ft super 2in deal casement lights, hung and glazed, solid frames, 4½ x 3	.. at 3 17 6
34½ " 1in plain shutters, clamped at ends, and hung, &c.	.. at 0 0 6
19 " 4in plain soffits to windows	.. at 0 0 6
20 " 1½in window boards	.. at 0 0 6
1 Wrought-iron kitchen grate, with top falling bar, hearthstone, &c.	.. at 1 10 0
3 " bar, 3 x ½, under arch of fireplace	.. at 0 5 0
1 " grates, with hobs, hearthstone, &c.	.. at 0 12 6
198 yds super dashed, floated, and coated wall plastering	.. at 0 0 7
Painting woodwork in 4 coats, plain colour	.. 2 5 0
Total	£93 15 4

Prices in Dublin, at canal or railway:—
Slates, £9 15s 1d; laths, 14s 4d; timber for roof, £4 7s 7d; 6 doors and 6 frames, £3 11s 10d; sashes and frames glazed, £3; shutters, soffits and window-boards, £1 14s 2d.

Of No. 3 Plan, double cottage, and No. 4, labourers' cottages, we here give the estimates respectively:—

Quantities and Details	Rate £ s. d.
27 cubic yards excavation for foundations, &c.	.. at 0 0 4
25 " rubble masonry in foundations	.. at 0 6 0
111 " " in superstructure, including raking out and pointing joints	.. at 0 7 0
24 " workmanship only in opens	.. at 0 2 0
22 " brickwork of all heights and thicknesses, &c.	.. at 0 18 0
31 yds super cement concrete laid over foundation walls	.. at 0 1 0
15 " brick and stud partitions above and below	.. at 0 3 6
54 " Portland cement concrete floors, in kitchens, porches, and lower rooms, with concrete skirting	.. at 0 2 0
39½ ft lineal rebated and throated window sills	.. at 0 1 8
67 " punched and drafted angle quoins (vertical heights)	.. at 0 1 0
15 " door sills	.. at 0 1 3
61 " forming flues	.. at 0 0 4
94 Stock brick eave courses	.. at 0 0 3
4 Flue-linings to top of chimneys for caps	.. at 0 1 0
12 Punched and drafted stone door blocks, and setting	.. at 0 1 9
11 squares duchess slating on sawn laths, 3½in lap and rendered	.. at 2 0 0
44½ ft lineal fireclay ridge-tiles, set in mortar, and pointed with cement	.. at 0 0 4½
52 " slating on cement filletting	.. at 0 0 4
7½ squares roofing—rafters 4½ x 2, collars 4½ x 1½, and wall plates 5 x 3	.. at 1 2 8
2 Wrought-iron tie-bars, 2 x ½, with bolts, nuts, and washers	.. at 0 6 0
4 3-10 squares flooring joists, 9 x 1½, framed into trimmers, and flooring 9 x 1, tongued and grooved	.. at 2 12 0
24 Wrought-iron corbels under trimmers of floors, and fixing	.. at 0 1 0
154 ft lineal skirting, nailed to floors, 2 x 2, arris off	.. at 0 12 6
21 cubic feet inside lintels	.. at 0 1 9
102½ ft super plain soffits to lower windows, and clamped shutters, with hinges, fastenings, &c.	.. at 0 0 6
48 " 1½ window boards	.. at 0 0 6
10 Ledge doors, 1in rebated, with frames, hinges, thumb-latches, locks, &c., on an average	.. at 1 0 0
2 Ledge front doors, 1in frames, hinges, and fanlights	.. at 1 10 0
104 super 2in deal casement lights, hung and glazed, solid frames, 4½ x 3	.. at 0 1 8
2 Stairs 1½in treads, 1in risers, complete	.. at 3 5 0
2 Squares super 1in boarded partitions at top of stairs, planed, tongued, and grooved, with heads, sills, and studs at angles	.. at 1 5 6
2 Wrought-iron kitchen grates, with hearthstones, &c.	.. at 1 10 0
2 " grates in bedrooms, with hearthstones, &c.	.. at 0 12 6
2 " bars 3 x ½, under arches of kitchen fire-places, and fixing	.. at 0 5 0
272 yds super dashed, floated, and coated wall plastering	.. at 0 0 7
58½ yds ceiling of bedrooms	.. at 0 1 0
Painting woodwork in 4 coats, plain colour	.. 3 15 0
Total	£191 0s 6d

The prices in Dublin, at canal or railway, for the following materials may be thus stated:—Slates, £12 15s 11d; laths, 16s 6d; ridge tiles, 18s 8d; timber for roof, £5 11s 5d; tassels, joists and flooring, £4 1s 10d; trimmers, joists and flooring, £10 18s 9d; studs, heads, sills and ties, £1 4s 7d; skirting, 13s 11d; 3 doors and frames, £1 13s 3d; hall-door, frame, fan sash and trimmings, £3 9s; 6 doors, hanging stiles and stops, £4 7s; sashes and frames glazed, £8 14s 7d; shutters, backfolds, jamb-linings, soffits, window-boards, &c., £4 12s.

* See plans in IRISH BUILDER of 1st and 15th November and 1st December.

We omit some minor items from the following, in respect to prices of materials at canal or railway in Dublin:—Slates, £13 9s 6d; laths, £1 4s 6d; ridge tiles, 8s 9d; roofing timber, £4 17s 7d; including planing of floors both sides, £7 1s 9d; planed skirting, 9s; lintels, £1 11s 6d; with stairs made and sheeting prepared, £5 16s.

Concerning tiles for double cottages, if fire-clay tiles, £10 16s; Carlow flags, about the same. If angle stones are used, add £1 17s 6d; if cast-iron gutters and down pipes, add £1 12s 6d.

If store and scullery are added to the double cottages, the cost will be between £39 and £40 additional.

Estimate for labourers' cottages (No. 4) as follows:—

Quantities and Details.	Rate.	£	s.	d.
19 yds cube excavation for foundation, etc.	.. at 0 0 4	0	0	4
18 " rubble masonry in foundations	.. at 0 6 0	0	6	0
51 " " in superstructure, including raking out and pointing joints	.. at 0 7 0	0	7	0
8 " workmanship only in opens	.. at 0 2 0	0	2	0
11 1/2 " brickwork, &c., of all heights and thicknesses	.. at 0 18 0	0	18	0
26 yds super cement concrete laid over foundation walls	.. at 0 1 0	0	1	0
25 " Portland cement concrete floors, in kitchen, porch and dairy, with concrete skirting	.. at 0 2 0	0	2	0
12 ft lineal rebated and throated window sills	.. at 0 1 8	0	1	8
40 " punched and drafted angle quoins (vertical heights)	.. at 0 1 0	0	1	0
10 " door sills	.. at 0 1 3	0	1	3
30 " forming flues	.. at 0 0 4	0	0	4
52 " stock brick eave courses	.. at 0 0 3	0	0	3
2 Flue linings to top of chimneys for caps	.. at 0 1 0	0	1	0
4 Punched and drafted stone door blocks	.. at 0 1 9	0	1	9
7 1/2 Squares countess slating on sawn laths, 3 1/2 in lap, and rendered	.. at 1 17 0	1	17	0
25 ft lineal fire-clay ridge tiles, set in mortar, and pointed in cement	.. at 0 0 4 1/2	0	0	4 1/2
13 " slating on cement filletting	.. at 0 0 4	0	0	4
5 8-10 squares roofing, rafters 4 1/2 x 2, collars 4 1/2 x 1 1/2, purlins 4 1/2 x 3, and wall plates 5 x 3	.. at 1 2 8	1	2	8
2 Wrought-iron tie bars, 2 x 4, with bolts, nuts, and washers at each end	.. at 0 5 0	0	5	0
1 square 4 1/2 x 2 joists, plates 4 x 2 1/2, &c. lin flooring, in bed-rooms	.. at 2 0 0	2	0	0
1 1-5 square 7 x 2 joists, framed into trimmers, and lin flooring over do.	.. at 2 12 0	2	12	0
6 Wrought-iron corbels under trimmers of floor	.. at 0 1 0	0	1	0
9 feet cube inside lintels	.. at 0 1 9	0	1	9
5 Lugged doors, lin rebated, with frames, hinges, latches, locks, &c.	.. at 1 0 0	1	0	0
55 ft super 2 in deal casement lights, hung and glazed, solid frames, 4 1/2 x 3	.. at 0 1 8	0	1	8
36 " 1 in plain shutters to four windows, clamped at ends, with hinges, fastenings, etc.	.. at 0 0 6	0	0	6
14 " plain soffits to ditto	.. at 0 0 6	0	0	6
24 " 1 1/2 in window boards	.. at 0 0 6	0	0	6
1 Step-ladder from kitchen to upper room	.. at 0 12 6	0	12	6
1 Wrought-iron kitchen grate, set in stone sides, with hearthstone, etc.	.. at 1 0 0	1	0	0
1 " bar, 3 x 4, under arch of fireplace	.. at 0 5 0	0	5	0
1 " grate in bedroom, with hearthstone, etc.	.. at 0 12 6	0	12	6
128 yds super dashed, floated, and coated wall plastering	.. at 0 0 7	0	0	7
25 " lath and plaster between joists of lower rooms, and to ceiling over upper room	.. at 0 1 0	0	1	0
Painting woodwork in 4 coats, plain colour	.. at 2 0 0	2	0	0
Total	.. £94 6s. 5d.	94	6	5

Prices in Dublin, at canal or railway:—Slates, £8 10s 7d; laths, 11s; tiles, 5s; timber for roof, £3 13s 8d; 5 doors and 5 frames, £2 18s 4d; sashes and frames glazed, £4 19s 8d; shutters, soffits and window-boards, £2 3s 10d. We may add the following in relation to the labourer's cottage:—4 in half-round cast-iron eave spouts, with the necessary angles, &c., 1s 2d per yard; 2 1/2 in down spouts, with the necessary hopper heads or nozzles, toepieces, &c., 1s 9d per yard.

It will be seen from the detailed estimates we have furnished that the costs of the farm-houses and cottages we have illustrated are very moderate, all things considered. The specification is no loose one, and though the buildings are plain and lack ornamentation, due provision is made for the comfort of the inmates. We hope to see many more erected like them through the provinces. Dwellings with more advanced improvements may be desirable in time; but, viewing the present state of our agricultural home tenant farmers and labourers, we dare to say, not only would this class of our population feel happy to be possessed of such dwellings as form the subject of our remarks, but of far inferior ones. Of the remaining estimates of cottages and out-houses (Plans 5 and 6), if it be thought desirable, we will furnish on another occasion the quantities and details.

OBITUARY DICTUM.

THIS issue of our publication closes the thirteenth volume of the IRISH BUILDER; and ere the year passes we wish to thank all our supporters, and bespeak their good wishes for the future. We trust that they are satisfied with our efforts throughout the year to make our journal a creditable exponent of their interests, and of the arts, industries, and manufactures of this country. While specially advocating the development and utilization of native resources, we believe we have been nowise oblivious of chronicling and supporting matters that tended to the general good outside our shores. No interests stand exactly alone; and we always wished it to be understood that on our standard was inscribed the Common Weal. Irrespective of sect or party; non-political, yet racy of the soil, we will endeavour to carry on this Journal in a manner deserving of the support of our constituency, and entitled to claim it for its steady adherence to principle in its advocacy of professional and national interests.

With these few words we turn our thoughts towards the NEW YEAR, and as it opens we shall have occasion, in the commencement of our New Volume, of saying some further words to our readers, on the past, and concerning the future and its duties.

CORRESPONDENCE.

ASSISTANT SURVEYORS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In common with a great number of my brother assistants here, I am anxious to know why the gentlemen appointed to carry out the objects of our association have collapsed, without apparently making any effort to carry into effect the objects contemplated, viz., the application for increased salary and superannuation.

It is now more than two years since officers were appointed, with clearly-defined duties; and, having assumed the responsibilities of office, it is only fair to expect from them some idea of what they are doing. I think they are right in not parading their *private* reports in the public press; but they might, if they thought proper, communicate by circular to each county.

My own opinion is, that they are doing nothing; and, if I am correct in this, they should state so: it would be a satisfaction to know even so much. The only information the general body of assistants have received during the time I have mentioned is—1st. A statement from the V. P. that next to nothing had been done up to that time. 2nd. That a pamphlet was in course of preparation, which, though promised as nearly ready then, has not yet appeared. This statement was given through the medium of the IRISH BUILDER, a paper which thoroughly deserves the best thanks and most cordial support of every assistant in Ireland for its very valuable services in advocating our claims, and so kindly identifying itself with our cause. And, 3rd. A statement was sent to each assistant by the treasurer, showing clearly the sums received and paid, leaving a balance in hands.

This is literally all that has been done since the appointment of our present officers, and it is considered most unsatisfactory by a large number of assistants, both in north and south, but particularly by those in the south of Ireland, who were led to expect some good result from the action of the *reputed* energetic men of the north. As nothing has been heard

of or from them for such a lengthened period, wherein they might have done good service, it is to be assumed the present or last elected officers have virtually resigned; and it will devolve on the general body of assistants to appoint others who will look after their interests better.

A good secretary is the chief requisite,—one who knows what to do, and is willing to perform it. The great success attending the efforts of the dispensary officers and of the clerks of petty sessions in procuring proper remuneration, have been mainly attributable to the exertions of one master mind in each case; and what we assistants want so very badly at the present moment is some such energetic and enthusiastic labourer, willing to assume the responsibility of secretary; and I think it would be of great advantage for such person to be resident near Dublin, where he could most conveniently summon such meetings as he might require. In my opinion, an allowance such as would recoup him for loss of time should be made, as it is unreasonable to expect an assistant to devote so much time without some remuneration. Few of them are in such a position as to be able to give so much time gratuitously.

I should like very much to know the feelings of my brother assistants, through the medium of your valuable paper; and, if it meet with the views of the body generally, I would propose that the new officers, as soon as appointed—or the present, if they promise to act—should wait on the Chief Secretary, and state our case, in order to have it legislated in connection with the Grand Jury Bill at present under consideration, or in connection with the County Surveyors' Superannuation Bill, or as a separate bill.

Meantime, immediate action is imperative. Valuable time has been wasted; and, knowing as I do many old and infirm assistants, —some only allowed by special grace of their County Surveyor and Grand Jury to retain their office, in the vague hope that the long-looked-for superannuation may come at last; others giving up in their old age, utterly broken down, and without anything saved. When our younger assistants contemplate this state of affairs (unparalleled in any other service in the kingdom), with the possibility that they too may come to the same end, I think if the consideration of this does not rouse them to action, I do not know what will.

It rests entirely with yourselves, assistant surveyors of Ireland. If you ask for your rights unanimously and as one man in the proper quarter, your reasonable demands will be carefully attended to, and success will assuredly crown your efforts. But if you continue to exhibit the same lukewarmness in the matter as you have done heretofore, there will be nothing left you but the same sad end you yearly witness in your aged and worn out and destitute brethren.—I am, &c.,

ASSISTANT SURVEYOR.

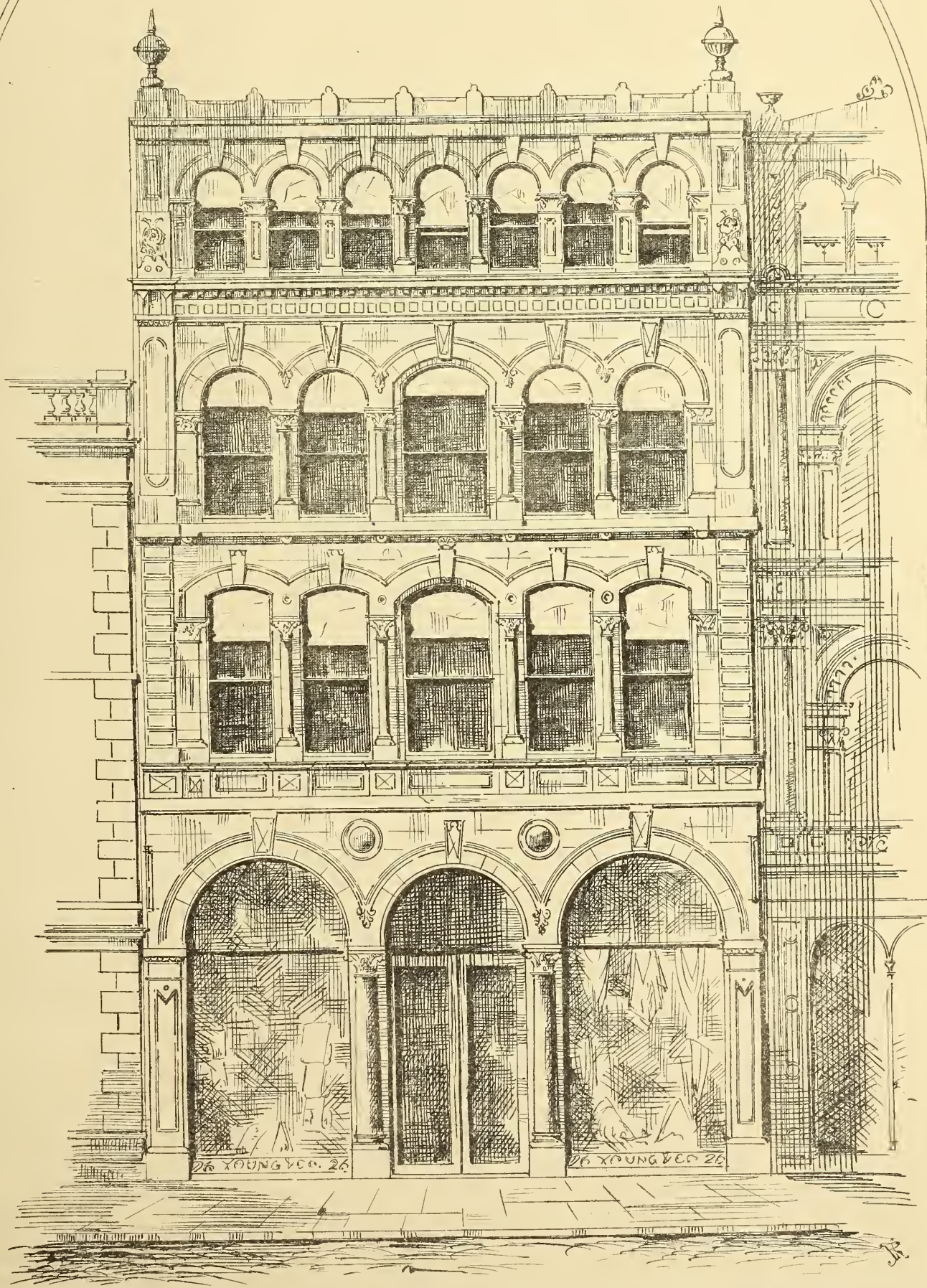
Co. Down, Dec. 9, 1871.

P.S.—If the officers and council still consider themselves in office, I beg to request the secretary, through you, to call a general meeting in Dublin early in January, to appoint a deputation to wait on the Chief Secretary. If such meeting is not convened, I trust some assistants near Dublin will take the matter up, and I promise them a good attendance.

IRISH V. FOREIGN MATERIALS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The building profession owe you a debt of gratitude for the manly and outspoken manner in which you have denounced the alas! too common practice of importing foreign materials, and, in some cases, foreign workmen into this country. It is much to be regretted that this propensity exists to a great extent amongst the Catholic clergy, who, of all others, ought to foster and encourage native art. I think that the principal cause is, that the greater number of those gentlemen having spent some years in Rome, and become imbued with the notion that everything they saw, either there or in



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their travels, is perfection. They therefore import, at a great expense, Italian and other marbles, &c., quite overlooking the fact that we have ornamental stones in this country only waiting to be quarried, and ignoring the not less important one that they are draining the money from an already impoverished people. I have myself some time ago inspected at marble works in this city an immense quantity of beautiful polished Irish marble, which I was told formed portion of an order exceeding £3,000 in amount, to be used in the new Manchester Exchange.

A case has come under my own knowledge in which a Catholic clergyman, after raising funds for a new organ, declared his intention of getting it made in France, because, indeed, he considered French organs were more trumpet-toned than Irish or English ones!

Where such a state of things exist, is it any wonder that we have English architects, yea, and in many cases, English contractors brought over the Channel to astonish the "Savage Irishry," as Spencer hath it? I have, however, in my recollection, and I doubt not your readers will remember several cases which terminated in heavy lawsuits, to the, I suppose, no small disgust of the employer, of whom I should say, "serve him right."

AN ARCHITECT.

NOTES OF WORKS.

It is proposed to erect a new church for the parish of Magherally, near Banbridge. It is to be of an ornamental character. Additions are also to be made to the parish church of Seapatrick, Banbridge. Mr. Thomas Drew, R.H.A., architect, has been entrusted with these works.

A contract has been entered into for the erection of a manse for the minister of the Bannside Presbyterian Church, on the Dro-more road, Banbridge. Mr. R. Cochrane, Banbridge, is the architect; Mr. John Jackson, builder.

An extensive ware-room, with handsome ornamental façade, has been erected in Newry-street, Banbridge, for Mr. Robert Stirling, for the display of cabinet and house-furnishing goods. Separate rooms, appropriately lighted, have been designed for the display of drawing-room, parlour, and bedroom suites. The building has been erected from the designs and under the superintendence of Mr. Cochrane, architect.

The alterations and repairs of the Scarva-street Presbyterian Church premises, Banbridge, are approaching completion. The whole has been enclosed by a handsome wrought-iron railing on cut-stone base, ornamental wrought-iron entrance-gate and wicket, with hollow wrought-iron pillars filled with scroll-work, surmounted by gas standards. The iron work was designed by Mr. R. Cochrane, C.E., in keeping with the Italian style of the church and school-house. Mr. Hugh McMullan is the contractor.

Extensive alterations have just been completed at the National Schools, Blackrock, Co. Dublin. Mr. J. L. Robinson, architect, 189 Great Brunswick-street; Mr. Canning contractor.

The building in Beresford-place, long known as "The Bath House," (carried on for many years by a respected citizen and kind-hearted employer, John Clason) has been remodelled, and converted into mercantile offices. The new proprietors engaged the services of Mr. J. L. Robinson, architect, and we understand that gentleman has superintended the works to the satisfaction of his employers. Mr. R. Henderson, builder.

Two dwelling-houses, Cambridge-terrace, Leeson-park, for Captain W. W. Hackett. Mr. Joseph Maguire, architect; Mr. John Boyce, builder.

Two semi-detached villas, Leeson-park, for the Very Rev. the Dean of Ardagh, by same architect and builder.

Two semi-detached villas, Leeson-park, for Captain W. W. Hackett, by same architect and builder.

Three dwelling-houses, Read's-road, Leeson-park, for Rev. F. C. Hayes. Mr. Joseph Maguire, architect; Mr. J. Jackson, builder.

Cricket pavilion on Howth Hill, for the Earl of Howth. Mr. Joseph Maguire, architect; Mr. Samuel Robinson, contractor.

Two dwelling-houses and shops, Main-street, Blackrock, for Andrew Corrigan, Esq. Mr. Maguire, architect; Mr. Tighe, builder.

STONYBATTER.*

AN UNFINISHED PROLOGUE.

'Twas half-past seven when the curtain rose,
(The lamps flared up we may as well suppose),
'Mid cheers that woke South King-street's dull purlieu,
Poll Murphy made her mighty grand *début*.
"She Stoops to Conquer," yea, she stoops quite low
To read the prologue of the "Shan Van Voght."
Oh, list ye gods, she chronicles small beer;
Laugh if you can, but do not drop a tear;
Forget awhile, mid jets of smoky gas,
That *Guns* are here, and instruments of brass;
Blow, mad musicians, while I softly glide
Through open doors to have a look outside.
The brickly fabric that now meets my gaze
Was built by bricklayers of better days.
Freestone dressings deck each open jamb,—
Upon my honour, nothing here is sham.
The windows have of course a window sash,
And each is painted with exquisite dash.
Resplendent front of brick and mortar chaste,
Where Roman Art and Classic Grecian taste
Had stooped to conquer with an effort bold,
But was worsted and left out in the cold.
I'll now describe—(but no, I'll hide the sin
That still remains outside) and look within.
These graceful shafts of molten metal cast:
Depend upon them, they were made to last.
Tier on tier of seats above each rise,
With "gods" and angels laughing with their eyes.
Quaint devices, blue, and red, and green,
Add fresh lustre to the grand drop scene.
The carver's gouge, the painter's priming brush,
Make this scene shady and the other flush;
Almighty Art with bucketfuls of paint,
The devil himself might play the acting saint.
Oh! Waller, Waller, why on earth, oh, why—
Sure we loved your shadow—why did you die?

* Is this the Stage, is this the Dublin which
Once boasted of the Drama pure and rich;
Of Farquhar, Steele, and Macklin's fame that lit
The flame that burned bright with Irish wit;
Of genial Goldsmith, dear "good natured man,"
Of brave and brilliant Brinsley Sheridan;
Of Keen our kin—in tragic strength a tower;
Of sparkling, witty, truthful, Tyrone Power?
Is this the city of the mighty dead?
Avant ye ghouls and body-snatchers brod,
Ye clothed skeletons with teeth that chatter,
Go hide your heads, and think on—

STONYBATTER.

THE ROYAL IRISH ACADEMY.

At the last stated general meeting of the Royal Irish Academy a very valuable suggestion was made by Mr. G. H. Kinahan in respect to Treasure Trove. We are very glad to find that this suggestion was adopted by the Council of the Academy, and that notices will be issued in the Irish language through the Irish-speaking districts. Many a valuable relic will be thus saved from the marine store and the melting-pot. The finder will be benefited, and will be secured from the fear of any action on the part of the police authorities or the Government. The Academy is prepared to give a better price than can be obtained by any covert sale of the articles that may be found.

We are not aware of the state of the funds of the Royal Irish Academy, or what amount may be in the hands of their bankers. Presuming that the members pay up their subscriptions regularly, which they ought to do, we ought then in that case expect some external labour at the hands of the Council of the Academy.

The Royal Historical and Archæological Society, though localised at Kilkenny, and with small means, are endeavouring to perform, and are performing, some valuable labour in the preservation of our national monuments. Now, we think this work comes peculiarly within the province also of the Royal Irish Academy. A mere *dilettanti* body (though we do not mean to infer that the Academy is actually one) can never effect

* A translation of a very rare MS. Irish fragment—so rare that our great Celtic bibliophile, John O'Daly, declares in his *Bibliotheca Hibernica* that he never met with another copy of it. Its date cannot be fixed with certainty, but it is supposed to be written on the occasion of the opening of the New Gloom.

a great amount of important service to science or the arts. To be a lover of antiquities, a fosterer of polite literature, and a promoter of scientific investigations is certainly to be engaged at most commendable labour. The workers or a council of the workers should however attempt a little more by giving motion and practical application to their investigations, no matter in what field of science it may be. We want something more than museums, though these are valuable in their way, and we would desire to see the nation at large getting the benefit of the papers read at our learned bodies. The publication and distribution of these papers may inspire many without the walls of the Academy to emulate those within. The exchanging of publications by one society with another is useful, and keeps alive a spirit of brotherhood between men of kindred tastes; but a national institution of such long standing as the Royal Irish Academy should afford some more fuller facilities to the mass of the nation for sharing in the benefit of their labours. There are some men within the circle of the Royal Irish Academy of whom any learned body might be proud—active, scholarly, industriously ambitious; but there are others of very questionable attainments in any branch of literature or science, and who are not likely this side of the grave to add to their necessary qualification for the membership of an honourable and learned body. This is an utilitarian age, an age that means work, not elysian dreams of honour to be obtained by sleeping in bed, or resting on one's oars. There is no royal road to learning, or well-earned distinction without hard study, and there ought to be no royal road or entry into the Royal Irish Academy for anybody on account of family or lineage if he lack the possession of what constitutes the scholar and the gentleman. Let us not be misunderstood, we speak in an open and general way, for we desire to see the Royal Irish Academy live, prosper, and be productive of more national good than it has been capable yet of achieving.

As a learned body whose labours are capable of being utilised to a great extent, as a body whose services can be extended, and whose voice could be made to command universal respect, we wish to see the Royal Irish Academy more *en rapport* with the people and the country, more known to them, more looked up to by them. The good-will, wishes, and sympathy of the population are necessary, and it does not need to be a member of the Academy to render it essential service. Outside sympathisers with kindred tastes can strengthen wonderfully the hands and mechanism of the society, and a general reciprocal feeling existing between the members within and the well-wishers without would in time give birth to important national impulses from which many benefits would flow. Thus literature, science, and art would be well represented, to the greater honour of the Royal Irish Academy and our country.

ESSEX BRIDGE IMPROVEMENT.

THE presentment for Essex Bridge having been passed, the Port and Docks Board are appealed to by the Corporation to alter their plans, with a view to facilitate the widening the approaches from Essex-quay to Wellington-quay, by removing the wall at those points further towards the present centre of the river. The proper method would be to remove back the line of frontage of the houses on portions of these quays. Essex-quay is at present little better than the original "Blind-quay," so well known to our fathers. The block of buildings stretching from the corner of Parliament-street to Wood-quay—if improvement is really intended—should at once be removed. We trust that the Liffey embankments will remain untouched. The river is quite narrow enough. We want it to exist as a graceful river, and not to be converted into a more contracted dog's ditch than it is, as far as filth and Corporate neglect can make it.

ON THE PREVALENCE AND DISTRIBUTION OF FEVER IN DUBLIN.*

(Concluded from page 311.)

Any person acquainted with the south side of Dublin will perceive, from the map I submit, that the fever streets are distributed amongst these districts, not only by the nature and outline of the ground, but by the age of the streets and houses concerned. These I have divided into three fever districts—the Coombe Valley (south-west); the West River (north-west); the East River (north-east). The Coombe Valley presents many particular features to render it most unhealthy, irrespective of the fact that it is a valley densely populated, some parts of it but 40 ft. above low water, and having a fall of 20 ft. into it, Thomas-street, closely adjoining, being 60 ft. above the level of low water. This would account for the unhealthy condition of this locality, more especially as the lanes and alleys in the neighbourhood have not even an attempt at drainage connected with them. All the streets and alleys sloping into this valley are well-marked fever streets. This district contains the greatest number of narrow courts, lanes, and alleys, densely-populated old houses, and cat-gut, glue, and similar manufactories, of any other in the city; besides, perhaps, the most dangerous nuisances of all are its large number of dairy-yards. The West River district has much greater facilities for drainage, and in consequence the red dots on map are more scattered. The East River district is lower and less easily drained than the West, but it has the advantage of being more open to the sea. With regard to the distribution of fever through these districts, it will be seen from the tables I exhibit that the bulk of the fever cases are furnished from the Coombe Valley district. While the average proportion of fever cases to each fever house is pretty much the same in each district, the proportion of fever houses per street is much greater in the Coombe Valley than in the other districts. This goes to prove that the fever houses are more closely set together in this than in the other two districts.

The map demonstrates the fact that it was not necessary that fever streets should be narrow and tortuous; on the contrary, two of the worst fever streets of Dublin—Meath-street and Francis-street—are wide and straight. It is the age and condition of houses, and their proximity to narrow courts and alleys, that formed one of the especial characteristics of a fever nest. This in connection with the want of proper drainage, ashpit and privy accommodation in connection with the houses themselves, would render any house or set of houses, sanitarily speaking, uninhabitable. Meath-street, with 95 houses, furnished fever from more than one-third. I could mention many other streets almost, though perhaps not quite so bad. The lanes and alleys are worse than the streets; and the courts, comprising yards and squares, are most pestiferous of all. These courts are of three kinds: 1, those originally constructed as such; 2, those closed up at one or both ends, and entered by archways; 3, back yards and gardens, that have, by the cupidity of the owners, been built upon, as well as the out-offices of dwelling-houses. All these together contain the maximum of separate tenements in the minimum amount of space. These latter come under the designation of the houses to which they are attached, and are only known, as a rule, to the clergy and dispensary doctors of the district.

Examples of these courts are numerous in South Great George's-street and Kevin-st. They are, in fact, narrow blind lanes, having an open sewer running down the centre, which empties itself into the main or at a trap at entrance of the court. These traps

are as frequently choked as otherwise. One common privy is the usual appliance for the court, cleaned once or twice a-year, and often only cleaned under legal procedure; the drainage of this privy either drifts down the drain or permeates the soil as circumstances exist. The square (so-called) is perhaps the worst form of court habitation. Neill's-court, off Marrowbone-lane; Gills'-square, off Cole-alley; and Derby-square, off Nicholas-street, are good examples of it. These squares have no drainage; as a rule they are surrounded by miserable old tumble-down densely-populated houses, and are strewn over with the excreta therefrom, which gravitates towards some natural depression in the surface of the square, the result of time rather than of engineering skill, and more than probable into the cellar of some adjacent house. Although the external appearance of these houses may be of rather a promising character, inside they are little better than whitened sepulchres. The ground of all these courts is saturated with decomposed organic matter, chiefly human ordure.

I have already mentioned that the number of houses from which fever cases have been admitted was over 1,200, and these houses furnished 1,825 cases, or in round numbers 2,000 cases of fever in two years. The number furnished by each house was very variable; 53 had furnished 3 cases each, and 1 as many as 17 cases of fever. Those which furnished less than 3 cases he did not include, as it would merely complicate the table.

From this statement might be gathered the number of fever nests on the South side of the city; how prolific they are, and what effect they produce on the health of the community. It will also be found that in the infected houses all sorts of fevers were prevalent; and, strange to say, this was more apparent since the commencement of the recent outbreak of small-pox. This would amply prove that unsanitary arrangements, or rather sanitary omissions, were productive of all sorts of zymotic diseases, and that the appearance of a fever of any sort in a dwelling-house should determine the attention of the sanitary authorities ("if such should exist") towards the sanitary condition of that locality.

The house 22 City-quay, where cholera first appeared in 1866, is a well-known fever nest to the present day. The house 58 Bridgefoot-street is worthy of description. It is entered from the street by a short passage with a black and rotten floor, in which are chinks communicating with the filthy cellar underneath, into which opens the burst-up sewer of the house; the walls are damp and sodden with filth. In the upper part things are somewhat better; where the tenants live and have control, the place is kept moderately clean. In these houses the state of the cellars and the sewers is most deplorable; it is to these parts of such buildings that the attention of the sanitarian should be principally directed. There is to 58 a small back yard ankle-deep with filth; also a privy and ashpit totally unapproachable. In the privy is the water-tap constantly running, and so keeping the mass seething in warm weather, and saturating the soil in wet. The cellar, into which opened the sewer, was immediately under two rooms in which resided fifteen persons, every one of whom had enteric fever. I also inspected several other houses of a similar character, in which the general aspect was the same. I have no doubt the dispensary doctors (many of whom are present) will bear me out in my assertions.

The remedy for this state of things may be summed up in two words—cleansing and draining. All close courts should be abolished; house drainage should be insisted upon; cellars should be filled up with dry earth and minerals; privies and ashpits should be cleansed by the authorities, and not left to be done by the owner or occupier, who won't do it unless compelled by law; in many instances the person in receipt of the rent should be held responsible for the sani-

tary condition of the house. Tenement houses should be regularly inspected by properly-qualified officers, dispensary doctors being the most suited for the purpose, from their knowledge of the existence of disease in their several districts. Under the Sanitary Act of 1866 they are clearly entitled to payment for services rendered by them for the benefit of the community.

Preventive measures appear to me to be sadly neglected in this city. There is one Officer of Health, the remuneration for whose services is not sufficient to induce him to devote the time and attention necessary for the proper sanitary superintendence of Dublin with its population of nearly half a million. Sub-inspection under the Officer of Health is of a very haphazard and amateur character, and those who come in contact with it know how perfunctory it is. The state of sanitary matters at present in Dublin is one that deserves public attention in an eminent degree, and it is to be hoped that the authorities will be compelled to do their duty.

COAL IN THE NEIGHBOURHOOD OF BELFAST.

On Wednesday evening, 22nd ult., the Winter session of the Belfast Naturalists' Field Club was opened in the Museum, College-square North, Belfast, when a lecture, being "An Inquiry into the Possibility and Probability of the Occurrence of Coal in the neighbourhood of Belfast," was given by Mr. Wm. Gray, District Officer of Public Works, and one of the honorary secretaries of the club. The chair was occupied by Professor James Thomson, LL.D.

The Chairman, on taking the chair, said that Mr. William Gray would read a paper which was an inquiry into the possibility and probability of the occurrence of coal in the neighbourhood of Belfast. The subject had attracted considerable public attention, and it appeared very suitable for discussion in that club. There was evidence enough that the geological position of coal was in the locality as to make it worth while to inquire into; and good advice upon the matter might either lead to valuable discoveries or save people from incurring a useless waste of money. He had great pleasure in calling on Mr. Gray to read his paper.

Mr. Gray commenced his lecture by saying that there was nothing very interesting in a lump of coal that would attract one's special attention from its appearance, and yet it is of far more importance than its relative the diamond. The diamond, he might say, represented the aristocracy of the family; the coal represented the bone, sinew, and utility of the family. The lecturer here gave a very excellent description of the various uses of coal, and went on to say that there were three periods in its history—viz., the period of its origin; the period that has elapsed since; and the period of its utility. It has been calculated that one foot of coal represented fifty generations of plants, each one of which represents a period of ten years, so that ten feet of coal represents five hundred years; but the united beds of coal existing in any coal field rarely measure more than 50 or 60 feet, whereas the other beds of the system frequently make up a gross thickness of from 9 to 12,000 feet. This gives some faint idea of the time it must have taken to accumulate the carboniferous system. Since then—that is, since the coal formation—not beds merely but whole systems of rocks have been formed, making up a gross thickness of 25,000 feet or more, all having been accumulated as sedimentary deposits in ancient seas, lakes, &c. From that calculation coal must have been in existence for more than a period of very many millions of years. Then came the period of its use; in early times coal was used only by smiths, &c. The first grant for the winning of coal was a charter of 1239. At the close of the 14th century it was introduced into London, but the citizens rose against its use in consequence of its fumes, just as the Belfast people now protest against the Blackstaff. It was hated so much that

* By Thomas Wrigley Grimshaw, M.D., Dub., Fellow and Censor of the King and Queen's College of Physicians; Physician to the Cork-street Fever Hospital; Physician to and Lecturer on Materia Medica in Dr. Steven's Hospital; etc. Read before the Medical Association of the College of Physicians, November 15th, 1871.

ladies would not go to any place where it was used lest it should spoil their complexion, and persons refused to eat meat cooked with it. Since then the consumption of coal has increased to an enormous amount, being now over three and a-half tons per annum for every person in Britain. A great question of the day was, would the coal supply now existing last for a long time, considering the demand? And it is ascertained that if the consumption increases to double its present consumption, the coal will be exhausted in 600 years, and within the last fifty years it has more than doubled.

The lecturer then introduced the question of the existence of coal in the vicinity of Belfast, and first illustrated the different strata of the earth, to show how coal occurs and where it is to be found. This he did by placing upon the top of each other, in a tilted position, a number of little logs representing the various strata, with the names on each as follows, beginning with the lowest systems:—Cambrian, silurian, Devonian, carboniferous, permian, triassic, oolite, tertiary, cretaceous, and superficial. All these systems, excepting the Devonian and oolite, are represented in the neighbourhood of Belfast. We must not suppose that any particular rock is confined to a special system. The limestone, although principally constituting the cretaceous system, is found in all the others; and so the coal, although belonging to the carboniferous strictly, is frequently found in the other strata. In the county Cavan coal is found in the silurian rocks; and in New Brunswick and the United States the coal was obtained from the Devonian. Coal beds are also found in the oolite, cretaceous, and even in the tertiary rocks. The coal of Killymurris, in county Antrim, belongs to the tertiary age, being found in the trap rocks. But the true stratigraphical position of coal was in the carboniferous system, where all the great coal fields of the world were found.

Mr. Gray then pointed out the rocks that occur around Belfast, how they occur, and their relation to the carboniferous system. This he did, with the assistance of a number of neatly-executed models and diagrams, in a very simple and popular manner; and having shown that in the neighbourhood there was the silurian rocks of the county Down, which occur below coal, and the new red sandstone and permian which occur above coal. The line between the two was the place where coal or the carboniferous system should be, but having thus found where our friend lives the question now became, was he at home? To ascertain this Mr. Gray said we must inquire of the neighbours, those are the surrounding strata, and he then alluded to the beds developed in the locality of Belfast with a view of ascertaining whether there was in them any indication of the carboniferous system, and by reference to the geological map and prepared section, he showed that beds existing in the neighbourhood were, first, the tilted and upturned silurian strata of the county Down, and next above were the permian beds of Cultra, which underlay the new red sandstone, the chalk and trap of the county Antrim. He then showed that the true position of the carboniferous system, and, consequently, the place for coal, would lie between the permian and the silurian of the county Down, or below the new red sandstone. Now the new red sandstone covered by thick beds of chalk and trap, extended over the greater part of Antrim, half of Derry, and a portion of Down. This area is bounded mainly by bold escarpments, along the slopes of which the successive beds are very clearly shown, and that there was no indication of the carboniferous system anywhere along the outside limit of the triassic beds, thus extended over the county Antrim and parts of the counties of Derry and Down, except the districts of Ballycastle and Dungannon, both of which Mr. Gray believes are completely detached from the area referred to. Coal, he said, was generally found in the carboniferous system, lying in beds or basins on the under-

lying rocks, and as a proof that such did not exist in the locality, he referred to the pocket or basin in the silurian of the county Down, which was an extension of Strangford Lough into Belfast Lough, and which is at present filled with the triassic beds that can be traced along their margin; and taking into account their dip and strike, together with that of the underlying silurian rocks, there was no evidence whatever of the existence of any representation of the carboniferous system, the small patch at Castle Espie being probably the remains of carboniferous strata which once existed in what afterwards became the scooped-out valley just referred to, indicating that the process of denudation, which removed the carboniferous system, not only here but all over Ireland, took place prior to the deposition of the new red sandstone. It was impossible to say whether the carboniferous might not occur in pockets over the silurian and other rocks under the triassic plateau of Antrim; but they might suppose it improbable, from the fact that all over the county Down—itsself remarkable for its undulating character—there are a great number of natural basins in the silurian rocks, and in none of these are there any remains of the carboniferous system. And taking this area covered by the new red sandstone, we have on its western boundary a clean escarpment of all the district rocks, from the trap to the underlying schists of Derry, along the Eastern boundary of the valley of the Roe, near Dungiven, and on its eastern boundary near Cushendall, a similar section, and no indication of coal can be found there. The coal fields of Ballycastle and Dungannon were really very limited and seem to be cut off from the area just referred to under the trap and new red sandstone. Some persons may suppose that the beds of Ballycastle may be continued under the Antrim rocks to Dungannon, but there is no proper ground for such a supposition; on the contrary it is clear they have no connexion. The Ballycastle coal field is clearly cut off from the other parts of the county by the schists and other primary rocks that surround the basin. The coal field of Dungannon is of a different age to that of Ballycastle. The latter belongs to a much lower zone than the former, indeed although we have in Ireland one of the largest developments of the carboniferous system found anywhere; that system is chiefly represented by its lower divisions. The carboniferous slates and mountain limestone, and the coal fields of the south occur in basins on the limestone, but mainly the coal measures if they were ever deposited extensively have been removed by denudation, and now we have extensive areas of carboniferous limestone without the coal measures that once reposed upon it; we have in fact over the greater part of Ireland an enormous development of the carboniferous system, but it represents only the zone that is *below* the coal; this is an answer to the often-repeated question, How is it we have no coal in Ireland? But in the north at Ballycastle the thick-bedded southern limestone is represented by shale, sandstone, and coal, like the lower coal measures of Scotland which belong to a zone below the carboniferous limestone, it being found both in Scotland, England, and Ireland, that the limestone thins out almost to nothing towards the north although it is several thousand feet thick in the south, and although the true coal measures occur over the mountain limestone towards the south of Britain and in other countries, yet in Scotland and at Ballycastle in Ireland the coal occurs below what may be considered to represent, the mountain limestone. Now Dungannon field is more like the southern fields, whereas Ballycastle is similar to the Scotch fields, and therefore there cannot be any connexion or continuation of the beds. Mr. Gray also said that the Dungannon field was detached from the Antrim area by the natural depression forming the site of Lough Neagh. The coal measures of Dungannon very probably continued for some distance under the new red sandstone to the east towards Lough Neagh,

but it was not likely they continued further or there would be some indication of the shales and sandstones found along the slopes of the southern escarpment of the Antrim area forming the valley of the Lagan, but there is no representation of the sandstones of Dungannon, or Cookstown, or the Lagan valley. The red sandstone system reposes directly on the silurian rocks. The geological features as well as the physical geography of the two localities show also that they are dissimilar and unconnected. On the whole Mr. Gray said he was clearly of opinion that while it was barely possible to have coal near Belfast, the probability was extremely remote indeed, and he saw no hope of speculators in search of it realizing any advantage.

Mr. Joseph J. Murphy, President of the Philosophical Society; Mr. John Anderson, J.P., F.G.S., Holywood; Mr. Joseph Wright, F.G.S.; Robert Young, C.E.; Mr. M. Fitzpatrick, and Mr. Samuel Stewart having spoken upon the paper, Mr. Gray replied, and in doing so said (in reply to the remarks of Mr. Murphy) that he did not deny the possibility of the existence of coal on the Antrim side of the Lough. He had endeavoured to prove that it was quite *possible* to exist there, but he had also endeavoured to show that it was highly *improbable*. And even if it did exist in small basins over the silurian or older rocks below the red sandstone of Antrim and Derry, its uncertain position, limited area, and possible depth would render it enormously expensive to win. Mr. Anderson thought that as we have in the neighbourhood of Belfast the succession of rocks that are found *over* the coal at Ballycastle and Dungannon, we might also expect to find the coal *below* as in those localities. Mr. Gray stated that although we have the trap, chalk, and new red sandstone in Belfast which occur above the coal at Ballycastle and Dungannon, we have them at Belfast clearly *resting on the silurian rocks*, without any representation of the 300 feet of sandstones that intervene at Ballycastle, or the sandstones, limestone, grit, and Devonian rocks that intervene at Dungannon. He agreed with Mr. Wright that one of the best places for trying for coal was near Cultra; but the best place he thought they could try would be in the neighbourhood of Moira, and the trial should be as near as possible to the slope of the hill. The main object should be to keep as far as possible *from* the silurian rocks, and as *low as possible* in the new red sandstone, where the lowest sandstone beds were exposed, and if they wanted to make an experiment near Belfast, he thought the neighbourhood of the gas-works would be the proper place.

The proceedings then terminated.

CORK SCHOOL OF ART.

ANNUAL DISTRIBUTION OF PRIZES.

THE annual distribution of prizes to the successful pupils of the School of Art took place in the Theatre of Cork Institution on Tuesday evening.

The Mayor presided.

Mr. Brennan, Master of the School, read the report as follows:—

Mr. Mayor, Ladies, and Gentlemen,—I have the honour to submit the report of the working of the Cork School of Art for the past twelve months. The attendance at the school (which this time twelvemonth showed a slight decrease as compared with the corresponding period of the preceding year) has, I am happy to say increased considerably, particularly in the evening class. The total number of students who passed through the school last year was 188. This does not include an average attendance of 23 boys from National Schools, who attend the evening classes, receiving their instruction, and having drawing materials provided gratis for themselves, the National Board paying a small amount yearly for the instruction, &c., of each student. In addition to this, instruction in drawing has been given to the Blue Coat School and various National Schools, by means of the pupil teachers of the School of Art, and it is also a gratifying feature that some teachers of the National and Model Schools avail themselves of the instruction afforded by the School of Art,

and that in each year since 1868, one or more have succeeded in passing all the subjects of the second grade certificate, thus qualifying themselves to earn payments on the teaching of drawing in the different schools to which they may be appointed. Amongst the successes of the pupils of the School of Art I may mention that last year the Coachmakers' Guild of the City of London offered the silver medal of the Company to the student who, being engaged in some branch of their handicraft, should be considered by the Science and Art Department to have submitted the best works during the year. The medal was awarded to Mr. Jeremiah Mullins, of Maylor-street, a most painstaking and industrious student. This competition was open to all the schools in the Kingdom. In the spring of this year Mr. William Barton (manufacturer), Boston, Lincolnshire, offered two prizes of £5 and £3 for the best designs for encaustic tiles for decorating the sides of firestoves. The competition was open to 36 Schools of Art. The first prize was awarded to Miss Anne Baker, a student of the school; and although the second prize was awarded to the student of another school by the examiners, Mr. Barton wrote to say that in his opinion both prizes should have gone to the Cork school—and signified his approval of the designs by purchasing those sent by Mrs. Henry Hill. These designs have been manufactured for him by Messrs Minton and Co., and he has recently written to me saying they will well repay the cost and trouble. The science classes in plane and solid geometry have not, until this winter, been availed of as in my opinion they ought, and yet those who attended have been most successful. Three students obtained classes in 1870 and one in 1871, and when we take into account that the number attending the class did not exceed three, these figures represent a fair percentage. At present there are fourteen students in the class. A knowledge of this subject is invaluable to the carpenter, engineer, &c., who wishes to understand the principles that govern the construction of the drawing from which he works, and not trust to mere rule of thumb as is too often the case. Thanks to the liberality of your Worship, the committee have been enabled to offer prizes in various stages of drawing to the students attending the evening class, and through the kindness of a late member of the committee prizes were also offered to students of the day classes. The competition in some of the stages has been very keen, and the result is that a large number of well-executed drawings have been produced, and will, I am sure, bring further credit to the students at the examination in South Kensington next May. In conclusion, I can safely say that the School of Art, labouring as it does under the disadvantage of being carried on in rooms almost totally unfitted for their purpose, does its work fairly and well. We do not profess to make a Hogan or a Maclise to order—such men cannot be manufactured; but we do profess to give sound practical instruction in the various branches of drawing, whether freehand or geometrical. To the student who desires the knowledge merely as an accomplishment, the school affords an opportunity of gratifying the taste; while to aid the artisan, the more severely practical studies of mechanical and geometrical drawing are not lost sight of. It gives an opportunity to all of showing what latent talent may in them be lying undreamt of—in one word, we believe all may be improved by their knowledge of an art that is each day being acknowledged to be of growing importance; and we trust the time will come when the power of description by means of the pencil will be as familiar to us all as by the means of the pen it is at present.

Mr. Scott, in moving the adoption of the report, said he had experience of the School of Design for many years, and he fully recognised the great and numerous advantages it conferred on the citizens of Cork. He regretted that the subscriptions were not commensurate with the worth of the institution, and he thought some steps ought to be taken to endeavour to increase them. They could not but observe that the building in which the school was held was not at present a suitable one, and he thought the Corporation could very well take the matter in hands, and erect a fine establishment which would answer the purposes of a town hall, and at the same time afford those advantages that should necessarily accrue to the youth of the city from having a School of Design united with it.

Mr. Beale seconded the adoption of the report, and remarked that he had long experienced the progress of the fine arts in the city. The first school of art established in Cork was in 1815, but in 1834 it had made

such little progress that the annual subscriptions were at the time only £133. That should not have been the case; and to-day the subscriptions for the encouragement of art in the city that had sent out so many famous artists should be even larger than they were.

The Mayor, in putting the proposition, said that no duty that devolved on him was more pleasing than to preside that evening. He believed there was nothing more important in a large city than that its young men should get an opportunity of studying the beautiful in art; and he considered it the duty of Government to afford the means of technical education to aspiring and industrious youths. He believed it would be a very good policy for those who legislated for them to afford them in that city some of the means of advancement and culture which were given to large cities like London, Dublin and Glasgow. The artisan who endeavoured to get a knowledge of arts in a small city like Cork was at a great disadvantage as compared with his brother artisan in London. There the artisan could at any moment, when his time permitted, turn into a place where he could study the great works of art, but such opportunities were very few in Cork, and he thought the Government should afford large opportunities of enabling the working classes to procure technical education. As the world advanced labour advanced. A man might be a good worker with his hands but he should be gifted with a power of design to aid his hands. The working classes of the United Kingdom were at a great disadvantage as compared with their fellow workmen on the Continent. That fact was attracting the attention of those who legislated for them. The disadvantages in a provincial city like Cork were still greater. They had not those benevolent individuals amongst them who would give large grants for those schools—they had no mechanic's institutes—and they were denied even the liberality of private individuals. These were great disadvantages, along with the fact that the Government did not provide them with a proper place to encourage the taste of artisans. The study of art was always beneficial to those who prosecuted it, and he thought that industrious young lads like one to whom he had the pleasure of giving two prizes that evening should get an opportunity of developing their tastes. Cork had been especially fortunate in the position it occupied in the artistic world—he doubted if there was another city of its size that could claim such celebrity. It produced such men as Hogan, Maclise, Barry, and Fisher, and these were sprung from, if not from the lower classes, at all events from the middle classes of the community. While they laboured under such disadvantages the world might never know what gems still lay undiscovered. The tendency of modern manufacture was imitation and to produce that which would please the eye. They should therefore educate their workmen and give them ideas of beauty, and they should frame their minds from boyhood to form opinions of the beautiful. As far as regarded that school, he was surprised to hear it existed since the year 1815, and he was still more astonished that it did not receive larger support. That might arise from a variety of causes—it might be that some were not aware of its existence. He thought that if they held annual exhibitions of the works it would bring the society prominently before the public, and would give rise to a spirit of emulation amongst the pupils. He could not conclude without testifying as to the thanks that were due by the City of Cork and the students of the school to their indefatigable and talented master, Mr. Brennan. It was most important that the native talent of the industrious classes should be properly developed, and that could only be ensured by their having a good master over them. They were most fortunate in possessing such an advantage in the person of Mr. Brennan, and he was only expressing the feelings of the

pupils when he thanked that gentleman for the care, attention, and ability he had brought to bear in promoting, as far as in him lay, the interests of the institution.

Mr. Brennan returned thanks for the compliment paid to him. He said they had reason to be proud of the ability displayed by the students, and he hoped they would go on year after year reaping still larger harvests of success. A gentleman interested in the school announced his intention to him of giving £5 for prizes for the coming year if another gentleman contributed a like sum.

The report was adopted.

Mr. Brennan then read the prize list, and the proceedings terminated.

BOOKS RECEIVED.

Intuitive Calculations. By Daniel O'Gorman. London: Lockwood, and Co., Stationers' Hall Court.

O'GORMAN'S "Intuitive Calculations" has become a recognised and standard work, and also, having reached its twenty-fourth edition, needs but little reviewing. In school or country-house, for private tuition or public examinations, an acquaintance with the ready mental efforts at calculation shown in Mr. O'Gorman's work will be most serviceable. The young scholar or the city clerk will be saved a world of figures by the adoption of the methods laid down in this work. Pens, paper, and ink will not only be economised, but labour and pain obviated. In the four first rules and their compounds, either in money, weight, or measure, O'Gorman's methods for working are plain, easy of adoption, and strictly accurate, and capable of undeniable proof. This little work has indeed effected a revolution in calculation, and the reform was much needed. It is strictly correct to say that O'Gorman's methods are the most concise ever before published. It is an advantage to many of those intuitive processes, that the young pupil's mind is exerted, and that after a while he can mentally work out the result of any ordinary sum, and even in some cases a more than ordinary one, without committing his figures to the slate. There is an appendix added on Decimal Computations, Coins, and Currency, with new decimal tables. This will also be found of great use, for before many years the decimal system is likely to be adopted, at least in a modified way, in all our monetary transactions. To those whose education has been neglected and who require a short, ready and reliable road to a sure knowledge of rudimentary arithmetic, we would advise them to study O'Gorman's work. The book also contains tables of value to the operatives of the building trades and other persons.

Ireland and the Imperial Parliament. By Jonathan Pim, M.P. Dublin: Hodges, Foster, and Co. London: W. Ridgway.

Mr. Pim's pamphlet is a calm and dispassionate one. His arguments are very reasonably put, but they are so suggestive and lead to so many issues that we must not be tempted to follow them in detail. Ireland is united to England by the Act of Union, she has both benefited and suffered by the connection. She has reaped some modern advantages and lost at the same time many golden opportunities of self improvement, of an improvement that needed a local and fostering guardianship. Leaving the question of a total separation outside discussion, there are two methods which find advocates of a goodly number in this country—a Home Rule by Irish enacted laws, Ireland still being under the English Crown, or a Federal Parliament. It must not be supposed that a simple Repeal would constitute though it might lead at a future time to separation. Federalism might also lead to repeal, and the establishment of the Irish Grand Committee proposed by Mr. Pim could, without any great combination of circumstances, lead directly to a more

serious and energetic Federalist movement than any hitherto attempted.

The business of the Imperial Parliament has grown very cumbrous of late years; the Scotch cry out, as well as the Irish, that measures relating to that country do not receive due attention. This is acknowledged, and how is the Irish and Scotch grievance to be satisfactorily dealt with. It has been suggested by Sir Erskine May, that the House of Commons should return to the old custom of Grand Committees, and that bills relating to Ireland (or Scotland) after their second reading should be given over for their final consideration or perfection to these committees. The Grand Committees of the Irish members would consist in their total of 105 members. A grand committee of Irish members considering an Irish bill in detail would be certainly an advantage, but is it certain under every form of cabinet of Whigs and Tories that the recommendation of the grand committee would be agreed to by the ministry? We have grave doubts of it. The recommendation of the Irish grand committee would no doubt be agreed to in many cases relating to bills of any ordinary nature but when they would refer to the projection of large public work or the striking of a heavy tax we fear the ministry and the grand committee would come to loggerheads. Mr. Pim thinks that the House of Commons would hardly venture on setting aside the amendments proposed by the grand committee of Irish members. He considers it would be too serious a thing to be lightly considered; the proof would be in the trial no doubt. The Government of Ireland is without doubt a most complicated system and has been from the beginning. With a strong or a weak executive there has always been a danger. The rule of the Lord Lieutenant was both an advantage and an anomaly. He was a deputy empowered to act in the name of the Sovereign, yet his hands were in a measure tied. In times of panic, in a self-preservative sense, he was forced to act, though feeling at the same time any wrong steps on his part would render him accountable to the House of Commons, and might eventually lead to his withdrawal.

In place of the present dual government Mr. Pim recommends the appointment of a Secretary of State who would be a member of the cabinet, holding a position in relation to Ireland somewhat similar to the Secretary of the Home Department in England, also two under secretaries, one removable, and the other permanent. The Secretary for Ireland and the removable under secretary to be members of the House of Commons, one of them at least representing an Irish constituency, so that he might be enabled to sit on the grand committee. The Secretary of Ireland would administer the government of Irish local affairs, and would be responsible to Parliament as a member of the cabinet like the Secretary of the English Home Department. It would be his duty to prepare all the bills relating to Ireland which the Cabinet might think right of proposing, and attend to them in the House of Commons. This is Mr. Pim's scheme, but we can only surmise how it would work in practice. The appointment of under-Secretary in this country, Mr. Pim believes, would naturally fall to some Irish member who had distinguished himself. The removal of the Lord Lieutenant, he thinks, would leave freer scope for the presence of Royalty.

Well, without being violent politicians in aught, we say, let us have some change in the management of Irish affairs. If the scheme of Irish grand committees will work the necessary reform required, by all means let it be tried; but we candidly confess we have our misgivings, not as to its value, but as to the difficulties that would of necessity crop up, arising from differences of opinion in the Cabinet, and perhaps, not unlikely, among the Committee itself.

Native rule—the management of Irish affairs by Irishmen—the making and passing of laws in Ireland while still holding the connection with England—we think would

be still possible of reciprocal advantages to a greater extent even than the previous rule between the years 1782-1800. Native Rule does not mean separation nor hostility. If we could restore the native industries of Ireland, develop her art and manufactures, utilise her almost exhaustless resources, and locally manage our own affairs by the adoption of the scheme of Grand Committees, the reformation effected would be a grand one.

Mr. Pim expresses his calm conviction that a separate legislature for Ireland would be fraught with danger, and the benefits expected from it could be obtained by the means he has suggested. He will find many, no doubt, who will agree with him, and many more who will not. The question is one, as we said in the beginning, that leads to so many issues, and needs such a careful examination in its details, that it is outside the province of this journal to enter at large upon it. Our great concern, however, is to see this country raised up morally and socially by means of education, and the arts and sciences, to the position she ought to occupy. If we can assist in this movement, we will be glad indeed, whether the affairs are attended to by a Grand Committee or a National Legislature.

We have also to announce the receipt of the following works, notices of which are unavoidably held over until our next issue. From Mr. John Murray—"The Choice of a Dwelling: a Practical Handbook of Useful Information on all points connected with Hiring, Buying, or Building a House;" by Gervaise Wheeler, architect. From Messrs. Lockwood and Co.—"Practical Geometry for the Architect, Engineer, Surveyor, and Mechanic;" by E. Wyndham Tarn, M.A., architect. From Messrs. E. and F. N. Spon—"The Sewage Question, &c.: Irrigation and Intermittent Downward Filtration;" by J. Bailey Denton, M. Inst. C.E., F.G.S.

SANITARY PROGRESS IN THE CITY AND PROVINCES.

THE state of the streets of this city is still existing a chronical scandal. In the concluding portion of Dr. Grimshaw's paper in our issue of to-day statements appear which ought to make every member of our Town Council thoroughly ashamed of the Corporation of which he is a member. With localities and houses existing for years as normal fever nests and cesspools of pollution, how can we be free in this city of fever? Rates are struck fast enough to meet the expenses of an intended job, or to make up a deficiency, but no steps are taken to cleanse the back lanes or alleys of our metropolis, or direct and carry out a searching visitation to the wretched tenements of the poor north and south of the Liffey. The Corporation enforced a fine against the Gas Company—has it really been paid? With a little trouble, power may be acquired by the Queen's Bench, in the interest of the ratepayers, of enforcing a penalty against the Corporation. Matters had better be improved at once before compulsory powers are called for.

Independent of any appeal to the Queen's Bench, the Irish Executive is invested with powers by the recent Sanitary Acts to force the Corporation to perform its obvious duties; and, if neglecting, to appoint parties to do it and sue the Corporation for the expenses and penalty for its default. The sad case of the Prince of Wales we hope will act as a salutary warning to all parties, corporate and domestic. The Castle of Dublin or even the Viceregal Lodge cannot be considered safe while the city continues in its present unsanitary condition. The homes around our public squares are as likely to be hot-beds of contagion as the tenements in some of our narrow back alleys, for the drainage of Dublin, the ashpit and water-closet systems, are both full of danger from the loose and

slovenly manner in which they are managed. Sewers reeking with filth, tenements crowded and ill-ventilated, fever here and small-pox there, streets and pathways thick with gutter, and general indifference and indolence on Cork-hill—this is the condition of dirt-covered and fever-stricken Dublin.

From Athy complaints reach us of the insufficiency of the water supply; the town pumps are out of repair, and the inhabitants are out of temper. The contractor to the Commissioners is dismissed for his neglect of duty, and the pumps are about being repaired. Athy has also elected a town inspector and rate collector.

Pauper deportations to Ireland from Scotch and English workhouses continue. Several unions throughout the provinces are engaged in the consideration of the matter with a view to a reform.

The Town Commissioners of Athy, having no lighting powers under the Act, are organizing for the collection of subscriptions from the resident gentry and others, to enable them to add twenty additional lamps for the lighting of the town and suburbs.

Scarlatina is reported to be very prevalent near Nenagh. Several deaths have occurred, and many more are suffering from the malady.

The nuisance complained of existing at the Curragh is reported as abated. The reservoir at the camp is stated to be in perfect working order.

The asphaltting of Grafton-street is being suspended until the commencement of the year, owing to a memorial on the part of some of the traders, who complained of a loss of trade in consequence of the stoppage of the traffic at this busy season of the year. The asphaltting of Grafton-street is performed by the Limmer Company.

TENDERS.

For the erection of a square of wooden shedding on the grounds of the South Dublin Union Workhouse, for the guardians. Mr. Joseph Maguire, architect, 201, Great Brunswick-street. Quantities by Mr. H. Harford, South Richmond-street.

£1,461 0 0	£1,167 0 0
1,396 0 0	1,155 0 0
1,381 0 0	1,150 0 0
1,349 0 0	989 0 0
1,250 0 0	950 0 0
1,207 0 0	

FRANCIS JOHNSTON, ARCHITECT,

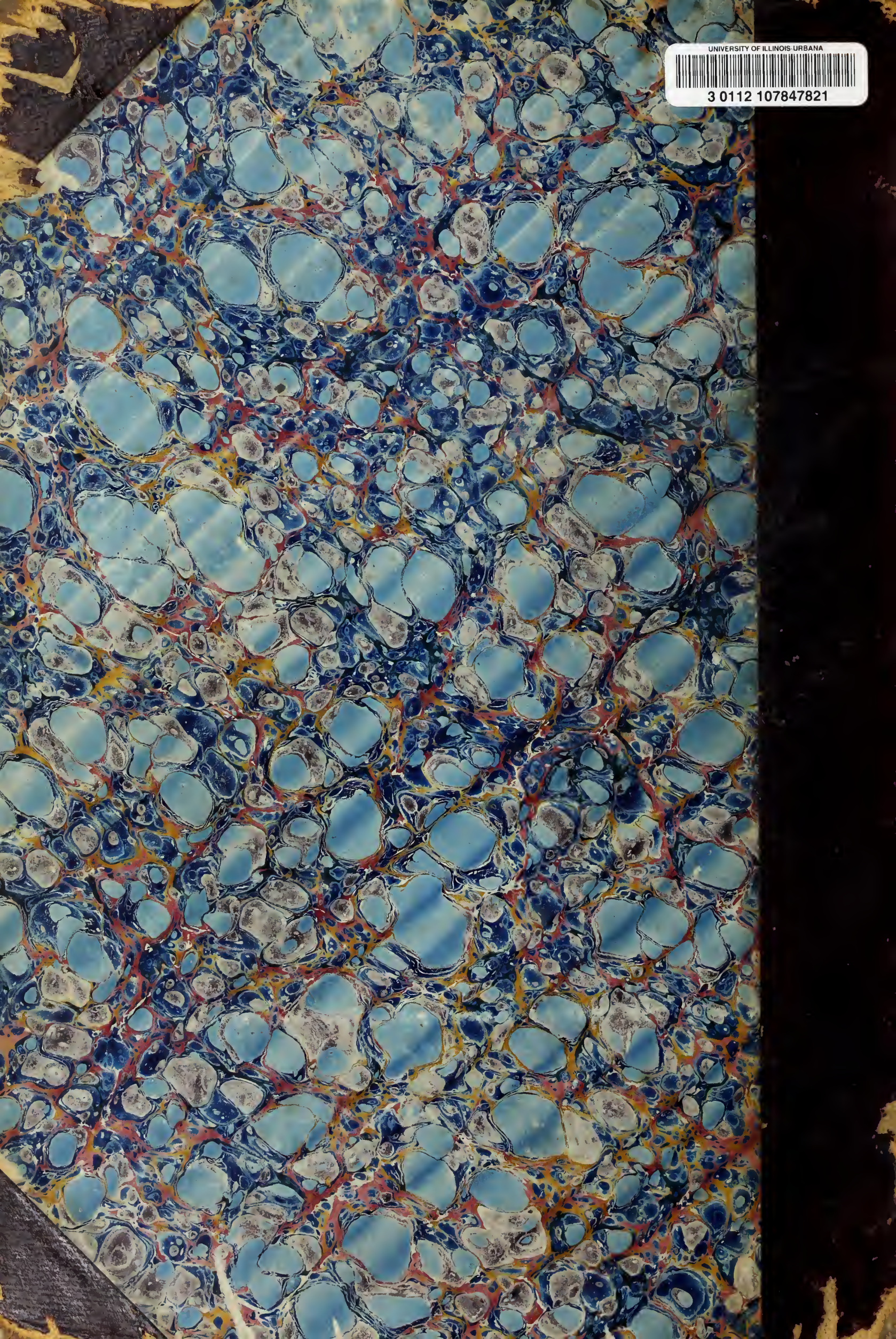
FIRST PRESIDENT AND FOUNDER OF THE ROYAL HIBERNIAN ACADEMY.

We are informed that an original and comprehensive memoir of Francis Johnston, our great native Architect, will shortly appear. It will most likely, firstly appear in a somewhat abridged form as a magazine article, and will be afterwards included and extended to a greater length in the promised volume, on "*The Lives of Irish Architects*," the author of which is busily engaged in the collection of all available materials. In the interest of Irish Architecture, we would ask all who may read our words to render whatever assistance they can in furnishing notes of personal recollections, or of the practice, private and public, of Irish Architects of note, that the author may be enabled to make his volume whenever published as complete as possible. There are many architects, engineers, builders, &c., who no doubt could supply important items which have come under their knowledge through the course of their practice.

We will be very glad to be the medium of receiving any notes relative to the lives and works of our native architects, and of handing them over to the proper quarter.

All earnest native efforts should be encouraged, and so thought Francis Johnston, when he made his princely gift, further augmented by his relict, in founding the Academy for Native Painting, Sculpture and Architecture.





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